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(*Continued on page* 22)

Editorials

Nursing Research is of International Interest

IN the early planning for *Nursing Research* a question was raised as to whether the magazine could expect to help meet the needs and to interest nurses living in different parts of the world. The restriction in communication imposed by language was recognized. Therefore, the editors were especially gratified to find the January 3 issue of *Nursing Times,* the official journal of Great Britain's Royal College of Nursing, commenting editorially on *Nursing Research* and also reviewing the contents of the first issue. Miss Wenger concludes the editorial by writing:

> there must be, behind all investigation and research, a knowledge of what others have already discovered in the particular matter under review; what practical experiments have already been undertaken, and their results. Here the reports and their publication are of the utmost importance. They must be available for reference to nurses of all countries as the development of professional nursing throughout the world is so inter-related, stemming as it does from Miss Nightingale's impetus yet influenced so greatly by the special contribution of each country already claiming a professional body of nurses. For these reasons we welcome particularly the new journal—*Nursing Research*—published by our American colleagues and would support their plea that all interested nurses should share the responsibility for ensuring timely dissemination of information concerning researches in nursing.

The fact that *Nursing Times* feels that the establishment of *Nursing Research* is a step forward and that it can make a broad contribution to the advancement of nursing gives the editors of the magazine deep satisfaction. But in addition, *Nursing Times* has performed a direct service by its thoughtful analysis of the content of the first issue and by pointing out some broad implications. The exchange of ideas is essential to the development of nursing. We hope that the example set by *Nursing Times* will encourage many others to comment thoughtfully and critically on articles appearing in *Nursing Research.*—HELEN L. BUNGE.

Looking Ahead

WITH this issue *Nursing Research* begins its second year. Such a milestone calls for at least a little reminiscing and certainly a lot of stocktaking. In what ways did the first year measure up to what was anticipated? In what ways did it fall short? How can the experience of the first year be used in planning for the future?

The Association of Collegiate Schools of Nursing, the original sponsor, made the first financial contribution to the magazine. With the change in structure, the National League for Nursing has now assumed the sponsorship. Convinced of the worthwhileness of the venture, the American Journal of Nursing Company joined forces in launching the magazine. Individuals, too, rallied to the support of *Nursing Research* through financial contributions and in other ways. The American Nurses' Association offered to help meet the financial deficit that was expected, but it has not been necessary to accept these funds.

In the early planning for the magazine, it was estimated that we might have 750 or 1000 subscriptions the first year. Therefore, the editorial board geared all of its planning concerning format, size, and printing process to that estimate.

Actually, subscriptions the first year exceeded 11,000. When it was apparent that the number of subscriptions would materially surpass the predictions, many changes were made in the plans for the magazine to make it as useful as possible to readers. A more desirable printing process was selected, the page size was enlarged to that of the *American Journal of Nursing,* the wordage was increased. And the magazine is in a stronger financial position at the end of the first year than was anticipated.

The content of the magazine during the first year was representative of the various nursing fields but the immediate future does not hold so much promise in that respect. The studies coming to our attention now are largely in the area of nursing education. Public health nursing, nursing service, and other fields are not represented to so great an extent. It is unfortunate that areas where the need for systematic study is so well recognized are not represented more often in the studies that we are receiving. We depend upon friends in the field to inform us of studies that are suitable for publication in the magazine. We urge them to keep up the good work.

The suggestion has come to the editors that the reports of studies be kept short, that there be more "briefs," and that less space be devoted to any one study than is now the case. This comment will receive careful consideration. However, the purposes of the magazine are those that were stated in the first issue:

To inform members of the nursing profession and allied professions of the results of scientific studies in nursing, and

To stimulate research in nursing.

In order to meet these purposes the magazine must meet the interests and needs of those who wish to have a full reporting of the methodology of studies as well as the conclusions reached. *Nursing Research* is expected to make this unique contribution. However, other nursing magazines are ready to report studies in an abbreviated and more popularized form.

The past year's experience in launching the magazine has given the editors a good springboard for the second year. Readers are urged to assist by sending their comments and suggestions. May the second year prove to be an even more significant one in the life history of *Nursing Research*!

Position, Function, and Job Satisfaction of Nurses in the Social System of a Modern Hospital

By Robert P. Bullock

I. Introduction

The basic objectives of this project, as stated in the original prospectus, were to develop an understanding of the social position, functions, and relationships of nurses in the social system of the modern hospital; to identify, in that system, the social and oganizational factors significantly related to efficiency and job-satisfaction of nurses. Four questions to which the research would seek answers were indicated:

1. What is the place of the nurse in the formal and informal organizational structure of the modern hospital's social system?
2. What social and organizational factors in the social system of the hospital are significantly related to the efficiency of nurses and nurse teams?
3. What social and organizational factors in the social system of the hospital are significantly related to the job-satisfaction of nurses?
4. What relationships exist between job-satisfaction, nursing team morale, and efficiency?

Definition of Terms

Certain terms and concepts in this statement of objectives require definition. By the phrase *social structure of a group* is meant its organization as a system of unit parts which are inter-dependent and operate regularly as a single whole. The term *structure* refers to the form of the regular relationships in expected patterns of behavior, roles, functions, and status as between component parts comprising the unit or system (1). The whole wherein varied population or personnel groups work interdependently and in close relationship with one another, each group discharging delegated functions, performing in certain roles, exercising certain prerogatives, and conforming to certain behavior patterns which they perceive as expected of them.

The nurse group is a key segment within this system, which includes such other groups as doctors, administrators, interns, technicians, patients, visitors, and relatives. The varied demands, expectations, and requirements which these groups impose upon the nurse mark out and delimit a role she is expected to play, functions she is expected to perform, standards she is expected to accept, behavior codes to which she is expected to conform, and a status position of inferiority or superiority relative to other personnel groups. These expectations as perceived and understood by the nurse delineate her *social position* within the organizational structure of the hospital's social system.

The term *formal organizational structure* refers to the official or "blueprint" plan which delegates duties, penalties, rewards, responsibilities, authorities, a chain of command, and official channels of communication. This is the administrative plan of organization designating relationships between groups and between individuals within groups. There is in addition to this formal organizational structure an *informal structure* embodying behavior codes and expectations recognized by fellow workers but not reduced to blueprint formality nor publicly advertised. Such structure is of crescive origin, evolving and accumulating as a special group or occupational culture. The *formal organization* is the blueprint of relationships, functions, authorities, et cetera, as they are supposed to exist "according to the book." The *informal organization* refers to relationships, functions, behavior codes, et cetera, as they really work "when you know the ropes."

The formal expectation is perhaps that no nurse will ever smoke while in uniform. The informal system of expectations permits the nurse to escape occasionally to locker room, fire escape, or lounge for a cigarette. The formal organization specifies a channel of communication upward through successive authority levels and thence to another department or division from which a reply retraces these steps in reverse. Thus a requisition for some needed service may proceed from general duty nurse to head nurse, to supervisor, to supervisor of

This study is being sponsored by the Ohio State Nurses Association through its Committee on Studies of Nursing Functions. The study, begun in June 1952, is being conducted by the Ohio State Research Foundation.

maintenance, to foreman, to the carpenter, who then explains to the foreman that he can't provide the service until some indefinite time in the future. If the formal channel of communication is rigidly followed the reply finally arrives at about the same time as the carpenter. Informal organizational patterns may, however, permit one to "cut cross-lots" when he or she "knows the ropes." Thus, the nurse if she really needs the service and "knows the ropes" may disregard the so-called "proper" channels of communication designated in the formal structure, go directly to the appropriate carpenter, deliver the message, and get the job done at once.

The term *job-satisfaction* is, for the purpose of this study, considered to be an attitude which results from a balancing and summation of many specific likes and dislikes experienced in connection with the job. This attitude manifests itself in evaluation of the job and of the employing organization. These evaluations may rest largely upon one's own success or failure in the achievement of personal objectives and upon the perceived contribution of the job and employing organization to these ends. Thus a worker may like certain aspects of his work yet thoroughly dislike others. He may dislike the major portion of his work or all of it and yet evaluate the job positively as a means of attaining desired goals. Job-satisfaction as here conceived is an evaluation of one's job as contributing suitably to attainment of one's own personal objectives.

II. Research Design As Outlined in the Prospectus

Procedural steps proposed in the design of this study were as follows:

1. Review of pertinent literature and preparation of initial interview and guide schedules.
2. An interview and observation program with a selected hospital:
   - A. To develop a *tentative* and *subjective* answer to the question posed as our first major objective ("What is the place of the nurse in the formal and informal organizational structure of the hospital's social system?")
   - B. To gain clues or hunches as to factors suspected of relationship to job-satisfaction or dissatisfaction of nurses.
   - C. To clarify problem areas, making possible a more specific and direct focus and a more precise definition of the research problem of this project.
3. The construction and testing of scales for the measurement of efficiency, job-satisfaction, and morale.
4. The construction of schedules of items judged to be indicators of factors possibly associated with high or low satisfaction and high or low efficiency.
5. The administration of scales and schedules to an appropriate sample of the nurse population.
6. Statistical analysis of data, using chiefly the critical ratio and correlation techniques, to identify social and organizational factors significantly related to job-satisfaction of nurses, to nurse and nurse-team efficiency, and to determine the nature and character of relationship between job-satisfaction, nursing-team morale, and efficiency.
7. Preparation of the research report.

III. Present Status of the Project

Even a partial review of the literature of nursing suggests problems of considerable variety. Prominent among these is confusion or uncertainty within the nursing profession as to the appropriate functional role of nurses. Thus, Frances Reiter (2) distinguishes between "custodial" nursing, "restorative" nursing, and professional nursing practice. Noting the clerical functions, the supervisory functions, and the technical functions of the nurse, Miss Reiter holds that the truly professional nurse must also be a mother substitute with the functions of a psychotherapist, and must stand in a peer and equal relationship with doctors and other allied professions.

Esther Lucile Brown (3), in *Nursing For The Future,* a most excellent report of a survey undertaken for the National Nursing Council, notes such newly recognized functions as the educational activities of the nurse, particularly in connection with obstetrical nursing and pediatric service. Leadership functions in planning for positive health on community, state and national levels are also emphasized. A clinical or diagnostic function seems to be implied in the assertion that the nurse must be "one who recognizes and understands the fundamental health needs of a person sick or well and who knows how these needs can be met," who "must recognize the physical symptoms of illness, which are commonly identified with organic changes," who "must also recognize those heretofore less considered manifestations of illness such as anxieties, conflicts, and frustrations which have a direct influence on organic changes." Two additional functions noted by Miss Brown are those of skilled clinical technician or "the role of physician's assistant in carrying out technical procedures and treatments, and that of critical observer entrusted with care of the patient sometimes for long periods without specific directions from the physician." Miss Brown emphasizes particularly psychotherapeutic functions related to the mental and emotional reactions which accompany physical aspects of illness, the emotional components of disease, the recognition of psychosomatic conditions, and the utilization of psychological skills in providing emotional support for the patient.

E. L. Koos (4), in *The Sociology of the Patient,* suggests an additional function resembling that of the social worker and family counselor when he suggests "Nursing requires an understanding of the patient's background and social heritage" and later that "nurses have a special responsibility (1) to understand what the family needs to provide for each of its members, (2) to recognize the weak-

nesses and strengths in the family situation, and (3) to know enough of the family resources to be able to guide the family to proper sources for help."

Veronica Lyons (5), in an article entitled "Understanding the Psychological Components of Health Care," describes nursing curriculum modifications at New York Hospital School of Nursing which place new emphasis upon understanding one's self and others, the study of personality growth and development, and such social aspects of nursing as the effect of ethnic origins, religious beliefs, racial characteristics, and social and economic differences.

Dorothy Perkins (6), in an article entitled "A Program to Develop Team Leaders," implies the addition of a personnel management function.

Lucile Petry (7) notes as one of the major current problems that of determining what proportion of nurses are needed for *directing* nursing services performed by others, implying an administrative function.

Ralph W. Tyler (8), discussing the problem of developing a functional curriculum for nursing education, suggests that the functions of the professional nurse are coming to be those of administration, teaching, and supervising the activities of several types of personnel that assist the nurse.

Such views as those reported here represent to some extent the ideal image of what the professional nursing functions should be, at least according to these writers. Probably no one of them would suggest that this ideal has been achieved, nor would they hold that every individual nurse could or should be competent to discharge all these functions. Such an individual would indeed be a ministering angel of mercy.

Problems implicit in determining the functional role of the nurse have been well summarized by Curran and Bunge (9), in the volume *Better Nursing; A Study of Nursing Care and Education in Washington.* There is the problem, for example, of meeting or modifying the institutional demands of the hospital so that nursing care may be sufficiently personalized to permit the performance of at least some of the functions enumerated above. There is the problem of reallocating functions so that nurses may perform those functions for which they are qualified and be freed from functions for which they may not be qualified or which they do not desire. There is, too, the problem of determining what skills and what degrees of skill are needed by the various categories of auxiliary workers, and there are the problems of recruiting personnel for nursing education and providing an educational curriculum which will develop the competencies required.

An attack upon this problem of functional position or role has been made in numerous research studies involving job analysis techniques. Perhaps the most comprehensive and most definitive such effort was that of the Occupational Analysis Branch of the United States Employment Service in cooperation with The American Hospital Association (10). This study analyzes functions of the nursing service department personnel under the broad categories of (1) professional and semiprofessional, (2) administrative, (3) clerical, and (4) nonprofessional, as well as by special nursing units and by specific job titles from director of nursing to nurse aide, practical nurse, orderly, and floor clerk.

Study of the problem of allocating and coordinating nursing functions has resulted in the development of the nursing team concept. One analysis of this approach to the problem is given in *Nursing Service Research: Experimental Studies With The Nursing Team Service,* by Viola Bredenberg (11).

The nursing team as defined in these studies is composed of one professional graduate nurse and one or more auxiliary workers who are under her direction. The study itself is then a functional analysis and job description of work performed by members of this team.

Such problems as the allocation and coordination of technical functions of nursing are beyond the scope of this present study except insofar as they relate to the job-satisfaction of nurses and hence to their decision to stay in or drop out of the occupation. That there may be such relationships is a distinct possibility. Such questions as these suggest themselves: Is this ideal image of nursing functions shared by the rank and file of nursing personnel? Or is it a product of the vision and idealism of leaders in nursing service and education and held chiefly by them? Do professional leaders indoctrinate new recruits with the expectation that this is what nursing will be like? If this ideal is held by the rank and file of nurses, does the discrepancy between ideal image and the reality they discover later result in disillusionment, frustration, dissatisfaction, and perhaps a departure from nursing service? Is this ideal image shared by doctors utilizing hospital facilities? If the doctor's ideal differs from that held by the nurses, do these conflicting expectations result in frustration and low morale? Is this ideal image shared by the public, or is there a discrepancy between what nurses feel their functions should be and what the public is willing to allow? In other words, does the young nurse expect to become an administrator but discover that the patient looks upon her as a servant? If there is such discrepancy is it a source of or related to job-satisfaction as experienced by nurses?

Not only the functional position of the nurse but also her social position may be described in terms of an ideal image relating to behavior characteristics, personal qualities, codes of ethics, aspirations, and motivation. Phyllis Goodall (12), in *Ethics: The Inner Realities,* discusses some 19 qualities which the ideal nurse must have. Among these are fortitude, courage, purity, perseverance, ambition, loyalty, unselfishness, temperance, fidelity, hopefulness, consecration, and humor.

In the introduction to this book, Dr. Malcolm T. MacEachern tells the reader:

> The nurse appears (to the patient) as a goddess of healing, and her every gentle movement has a comforting and consoling power.
>
> In the nurse we expect sincerity and simplicity . . . a refreshing change.
>
> The appeal of the noble profession of nursing is to those who have nobility of character and an inborn urge to make their lives count in deeds of kindly service.
>
> It is love of humanity that leads a young woman to choose a career in nursing.

Within the text itself Miss Goodall tells us:

> Patience imparts a constant considerateness, a gentle strength and fortitude that do not fail in trial or persecution (13).
>
> This utter faithfulness to duty will safeguard you from the pitfalls of carelessness, thoughtlessness, and lack of vigilance, any one of which is a menace to safe nursing care (14).
>
> Courteous assistance given to doctors penetrates the wall of their preoccupation and awakens new pride in the institution that serves both them and their patients so truly (15).
>
> Loyalty means that you steadfastly refuse to mention, discuss, or give ear to any adverse comments about the hospital in the presence of your patients, their relatives, your associates, or acquaintances (16).
>
> At least half of your recreational time should be directed toward self-improvement (17).

Regarding dress, Miss Goodall implies that the nurse should not be faddish or modish but:

> Good taste in dress is indeed imperative. . . . It is well to be modishly in style but not slavishly enthralled by the cunning of those who prey upon women's vanity (18).
>
> Select clothes that are neither gaudy nor perishable, but will look well for a long time and will appear in good taste on any occasion (19).

A part of this ideal behavior code according to Miss Goodall is that nurses shall accept criticism without complaint, shall never smoke in uniform, and shall avoid flippancy and familiarity with interns.

These or similar expectations regarding the behavior patterns, personality characteristics, aspirations, and motivations of the nurse constitute an ideal image which may or may not be shared by the rank and file of nurses but which is presented in the literature of nursing education as professional adjustment necessary to the student on her way to becoming a nurse. Such an ideal image may or may not be shared by the lay public. It may or may not be shared by other hospital personnel groups. It may or may not be consistent with what nurses really do, how they really behave, what their motivations really are.

To pass a judgement upon the behavior codes of nurses or any other group is not within the province of this study, but we are entitled to ask whether such expectations are significantly related to job-satisfaction. We are entitled to ask, for example, whether nurses are subjected to expectations which they resent and which therefore lead to or are associated with dissatisfaction and low morale. Does the nurse try to live up to an ideal behavior code which she later discovers is not shared by other hospital personnel groups or by the lay public? Is there, in short, a conflict in expectations related to behavior patterns? If so, is it associated with low morale and dissatisfaction?

Similar expectation systems or images exist regarding such organizational factors as the delegation of authority, position in the formal and in the informal status hierachy, and the propriety of penalties imposed and rewards achieved. Where expectation systems are well understood, accepted, and fully shared by members within a group, it would seem logical to expect feelings of security to be high, anxiety and frustrations low, and, in association with these circumstances, a high degree of adjustment and satisfaction. Does there exist in nursing and in nurse education inconsistencies or discrepancies between expectation systems regarding such organizational factors as have been enumerated? Is low job-satisfaction associated with these inconsistencies or discrepancies? Such questions appear to be within the province of this investigation.

IV. Preliminary Test Of Real And Ideal Image Scale Items

Prior to the interview and observation program, two additional activities were undertaken. The first was a preliminary test of an image scale composed of statements relating to functions which might be expected of nurses. Sixty-eight statements were listed. All statements were positive in character, and five response alternatives were offered. The five response alternatives were "always," "often," "occasionally," "seldom," and "never." Directions preceding the listed statements were as follows:

> Following is a list of statements about nurses and the work they do. You can help us find out what nursing is really like by checking the space to indicate for each statement whether the statement is "always" true, "often" true, "occasionally" true, "seldom" true, or "never" true. *Try to describe what you think nurses really do.*

After the schedule had been checked according to these instructions, each respondent was then asked to go through the scale a second time marking each statement with a circle in the appropriate space to indicate what he or she thought nurses should *ideally* be expected to do. The scale was submitted in this fashion to a sample of 21 students at the Ohio State University who were not registered in the school of nursing, and to a second sample of 21 students registered in the school of nursing.

By assigning a numerical value of 5 to the "always" response, 4 to "often," 3 to "occasionally," 2 to "seldom," and 1 to "never," it was possible to derive a mean score value for each item and for each sample and for both the "real" and "ideal" image response sets. By computing the critical ratio of the difference between means, it was then possible to select those items showing greater discriminative power. The procedure used in computing critical ratios is shown in Table 1 on page 8.

Upon examination of the table it becomes apparent that student nurses and comparable students not in nursing education differ radically in their appraisal of nursing so far as this item is concerned. Mean score value for student nurse responses is 4.33 indicating the judgment that nurses have many administrative responsibilities somewhere between "often" and "always." Mean score

Table 1. Calculation of Critical Ratio for Difference Between Mean Values for Responses to an Item by Student Nurses and Students Not Registered in a School of Nursing

Item 2. (Real response set.) "Nurses have many administrative responsibilities in planning work and schedules for care of the patient."

Response	Student nurses			Students not in nursing		
x	f	fx	fx^2	f	fx	fx^2
5	10	50	250	2	10	50
4	8	32	128	4	16	64
3	3	9	27	3	9	27
2	0	0	0	12	24	48
1	0	0	0	0	0	0
Totals	21	91	405	21	59	189

$\overline{x}_1 = 4.33$ $\qquad$ $\overline{x}_2 = 2.80$

$\sigma_1^2 = .53$ $\qquad$ $\sigma_2^2 = 1.16$

$N_1 = 21$ $\qquad$ $N_2 = 21$

$$\text{Critical ratio} = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

$$= \frac{4.33 - 2.80}{\sqrt{\frac{.53}{21} + \frac{1.16}{21}}}$$

$$= \frac{1.53}{\sqrt{.0252 + .0552}}$$

$$= \frac{1.53}{\sqrt{.0804}} = \frac{1.53}{.28}$$

$$= 5.4$$

for students not in nursing education is 2.80 indicating that in the judgement of this group nurses have many administrative responsibilities "seldom" or only occasionally. Calculation of the critical ratio allows an estimate of the probability of obtaining such a difference between means by chance or accident. In this case the odds against the chance occurrence of such a difference are approximately one million to one.

Table 2 shows a similar computation for the same item when checked by both samples according to the ideal image response set, i.e., "Nurses *should* have many administrative responsibilities in planning work and schedules for care of the patient." The mean response value for student nurses is 4.6 indicating they feel that nurses should nearly always have responsibilities suggested by the item. Indeed, more than one half the sample indicated the "always" response. Students not in nursing were more conservative in their views with 25 percent of the sample indicating the "seldom" or "occasionally" response. Mean for the non-nurse sample was 4.05. Critical ratio for the difference between the two means was 2.2 indicating odds of over 20 to 1 that the difference is not due to chance. Other items on the scale tended to show similar differences. Because of the tentative and exploratory nature of this preliminary form of the image scale and because of the small size of the samples, no exhaustive statistical analysis of items was undertaken. Results, however, suggested that a further test of real and ideal image scales would be worth while. They seemed to indicate, too, that significant differences exist between student nurses and non-nurse students as to what functions nurses really perform. There appears to be a similar difference in opinion as to what functions they ideally should be allowed or expected to perform. This initial pre-test of scale items further served as a guide in the selection of items and construction of scales subsequently tested with student and nurse personnel during the interview and observation phase of the study.

V. Behavior Image of Nurses As Revealed By Descriptive Statement

Prior to the interview and observation program, approximately one hundred generalized descriptions of nursing and nurses were obtained from a sample of students including student nurses and students both male and female not in nursing education. Respondents in this sample were given a prepared blank with these instructions:

> In the space below, you are asked to describe nurses and the nursing occupation in a series of short statements. Statements about nurses should begin with the word 'Nurses' (are, must, can, do, have, etc.) and should describe their behavior, character, duties, training or other qualities. Statements about nurses should begin with the word "Nurses" (is, requires, involves, etc.) and should describe the occupation. Write as many as you can. Information in the blanks will be used only for classifying your descriptions.

Some of the descriptions thus prepared had as many as 20 to 30 statements. Almost none had as few as 10. The descriptions revealed wide variation in views or images held regarding nurses and nursing. Sample statements taken from the descriptions appear below:

Students Not in Nursing

> Nurses must be rigorous and healthy to stand irregular hours, long hours, standing, severe criticism, dirty work, nervous strain and calmness.
>
> Nurses acquire a sense of "hardness" which tells on their faces in time. They become less sympathetic and understanding of others.
>
> I have heard nurses state that they didn't think nurses were appreciated in general.
>
> Nurses are usually dependent.
>
> Nurses are often irresponsible.
>
> Nurses usually have just enough knowledge to often make them dangerous in administering of drugs.

Nurses must have more education than is now required.
Nurses are more free in premarital sex relationships.
Nurses are usually dominated by duty rather than compassion for suffering patients.
Nurses lead a confining life.
Nurses need to be very healthy.
Nurses are poorly paid.
Nurses have a hard time socially.
Nurses sometimes become overbearing.
Nurses must be able to take and follow orders implicitly.
Nurses are recruited largely from the lower middle economic echelons.
Nurses must efface self.
Nurses must obey unhesitatingly.
Nurses can be treated unfairly by doctors, patients, and supervisors.
Nurses have less modesty than most women.
Nursing requires only superficial scientific background combined with a sort of encyclopedic approach to disease symptoms, etc.
Nurses usually become hardened to the suffering they see and don't have the usual feminine sympathy.
Nurses are inclined to be very domineering and superior.
Nurses are generally snobs to every other field but their own.
Nurses are thin.
Nurses must be hard-hearted.
Nurses live frustrated lives.
Nurses appear to be lower in I.Q. than people in other fields.
Nurses are boring people.
Nurses lack an education.
Nurses are more uninhibited than other groups.
Nurses generally are inclined to be narrow in their fields of interest.
Nurses are freer in speech than other women generally.
Nurses are sometimes unfriendly and sometimes too crude and impatient.
Nurses often give the impression of being too superior.
Nursing does not stimulate any very complicated philosophy of life.
Nurses are grouchy and strict.
Nurses have to be patient and undergo a lot of strain.
Nurses marry at an older age.
Nurses are generally humble—not overaggressive in their attitude toward patients and supervisors and must carry out directions to the nth degree.
Nurses are girls who have similar backgrounds to department store and dime store clerks, but have more ambition than the clerks.
Nurses are usually single girls who had not been able to have a college education and had no immediate chance to get married upon graduation from high school.
Nurses are in a sense faster in regard to ways of conducting themselves than the average girl.
Nurses are girls who usually have come from average or below average families.
Nurses are inclined to have a forceful and striking personality.
Nurses must love their work, since the field of nursing requires a great deal of work and long hours and there are many unpleasant duties to perform.
Nurses believe much in regularity of habits —sleeping, working, eating, recreation, etc.
Nurses must be neat and clean at all times.
Nurses must do work which is considered to be dirty.
Nurses (I have heard) have more of a difficulty getting a husband than other girls.

All of the above statements were taken from descriptions written by female students between the ages of 19 and 25 who were not student nurses. Many statements written by these students indicated a high degree of respect for nurses and nursing. Samples of these follow:

Nursing is a respected profession.
Nurses are hard working people.
Nurses must have intensive training.
Nurses must be self-controlled.
Nursing requires great fortitude.
Nursing requires a lot of time, money and memory work.
Nurses are clean.
Nurses are respected by me for their devotion.
Nurses need to be adaptable.
Nurses must be patient.
Nurses are usually of high intelligence and sincere in their chosen field.
Nursing is a highly trained career.
Nurses need a great deal of technical knowledge.
Nurses, I believe, are as a rule clean-cut, healthy, and sincere individuals.
Nurses have to be patient and undergo a lot of strain.
Nurses must be humanitarians.
Nurses are attractive—generally because of neatness as well as physical attractiveness.
Nurses are reliable.
Nurses have little social life.
Nurses must be very patient and compassionate.
Nurses have very rigid training.

Table 2. Calculation of Critical Ratio for Difference Between Mean Values for Responses to an Item by Student Nurses and Students Not Registered in a School of Nursing

Item 2. (Ideal response set.) "Nurses should have many administrative responsibilities in planning work and schedules for care of the patient."

Response	Student nurses			Students not in nursing		
x	f	fx	fx^2	f	fx	fx^2
5	13	65	325	8	40	200
4	6	24	96	7	28	112
3	1	3	9	3	9	27
2	0	0	0	2	4	8
1	0	0	0	0	0	0
Totals	20	92	430	20	81	347

$\bar{x} = 4.60$ $\qquad$ $\bar{x} = 4.05$

$\sigma^2 = .34$ $\qquad$ $\sigma^2 = .95$

$$CR = \frac{4.60 - 4.05}{\sqrt{\frac{.34}{20} + \frac{.95}{20}}} = \frac{.55}{\sqrt{.0170 + .0475}}$$

$$= \frac{.55}{\sqrt{.0645}} = \frac{.55}{.25}$$

$= 2.2$

Nurses must have good character.
Nurses are self-sacrificing.
Nurses are prompt for appointments.
Nursing requires physical stamina.
Nursing requires the willingness to do the most insignificant task for the benefit of the patient.
Nursing is an admirable profession.
Nurses have a high sense of public duty.
Nurses must be patient in manner.

Student Nurses

The following are samples of statements appearing in descriptions written by student nurses between the ages of 19 and 23.

A nurse is respected and looked up to by most people.
Nurses must shoulder a great deal of responsibility.
Nurses are qualified to enter many other vocations.
Nurses are very alert, efficient persons.
To most nurses, nursing is just another way to earn money.
Nurses do not give themselves to serve humanity nor do they save lives every day.
Nurses are well informed in most topics.
Nurses are very sympathetic.
Nurses have an excellent background for marriage and children.
Nursing gives a person the feeling of being wanted.
Nurses are usually of a higher intellect group.
Nurses are usually kind.
Nurses have attractive personalities.
Nurses tend to have a broad scale of interests.
Nurses are tolerant and good humored.
Nursing creates great responsibilities.
Nurses are understanding.
Nurses like authority.
Nurses feel important and independent.
Nurses are usually tired and overworked and underpaid.
Nurses are usually well-educated.
Nurses are well-respected.
Nurses are dependable.
Nurses are friendly.
Nurses aren't as hard-hearted as some may believe.
Nurses all don't live up to the characterization of being the type to tell dirty stories and jokes.
Nurses are supposed to have entered nursing because of the mother instinct and being unable to marry and have children.
Nurses at times feel they are narrow-minded in the sense that they seem to know nothing about what goes on except nursing.
Nurses are teachers.
Nurses are a select group intellectually.
Nurses are morally clean as a general rule, contrary to popular thought.
Nursing is looked down upon by too many people who are themselves ignorant of the facts.
Nursing should *not* be considered as nurse's *training* but as nursing education.

Because of the exploratory nature of this early activity, no effort was made to classify descriptive statements for quantitative analysis, but it was felt that descriptions thus obtained tended to verify the existence of significantly different views regarding the personal qualities of nurses as held by student nurses and by other students comparable in age, sex, and background but not enrolled in nursing education. Occasional statements by student nurses appeared to reveal a sensitivity about views they felt others held. Whether such defensive statements resulted from personal experience or teaching they received is not known.

A high proportion of the statements submitted by student nurses were phrased as ideals, e.g. "Nurses should be flexible—able to modify and improvise" rather than as actual description, e.g. "Nurses are less bound by the 'social, unwritten laws' of society (they rebel)." Such statements probably reflect the teaching these student nurses have had, and as such may constitute a systematic code of expectations transmitted to successive generations of newcomers to the profession. If this is true, what happens to the neophyte nurse if she finds these expectations inconsistent with her experience as a nurse? What happens to the girl who, after being taught to believe she should be "independent" and "able to shoulder great responsibilities," enters a nursing situation where her every move is supervised, checked, and double-checked? What happens when the nurse who has been taught that nurses are well-respected finds little evidence of this respect in pay, in status, or in treatment accorded her by superiors within the profession or by her contemporaries both male and female in the lay public? Are such conflicts a source of disillusionment, frustration, anxiety and low morale? With questions such as these in mind, the interview observation program was begun in early July.

VI. The Interview-Observation Program

The primary objectives of the observation and interview activities were to gain an orientation to the hospital world by observing first hand the work that nurses do, seeking to learn from nurses themselves their concept of the nursing function, the characteristics of nursing service organization, the general problem areas in nursing and nursing service administration, and to gain clues as to reasons for satisfaction or dissatisfaction among nurses. With the prospect of using a statewide sample of nursing personnel in later stages of the study, exploratory tests were made of a scale for the measurement of job satisfaction, and of a technique for the indirect assessment of job satisfaction. Study in the local hospital situation took on a third aspect, that of the administration of tentative questionnaire schedules and the statistical analysis of data thus obtained. Activities in the local hospital situation consisted, then, of an initial period of direct observation, followed by systematic interviewing and finally the administration of tentative questionnaire schedules. The schedule contained a satisfaction scale, image scales, a section relating to personal background, and a section designed to yield sociometric data relating to group adjustment.

VII. The Observation Period

The period of observation was begun on July 1

with an orientation tour of the hospital such as might be given a new head nurse or supervisor. The tour was conducted by a senior clinical instructor thoroughly familiar with the hospital, its traditions, its organizational policies, and its personnel. The tour was complete from admissions to morgue, all questions were answered freely, and every effort was made to establish the groundwork for rapport necessary to fruitful observation activities. During the observation period, which extended into August, varying amounts of time were spent on various floors, in chart rooms, in "making rounds" with head nurses or with supervisors, in visits with orderlies and others of the hospital staff, in discussions with head nurses, and in informal visits during "coffee-hours." It was apparent during the early part of the observation that the observer was not wholly accepted but was viewed as a potential threat. Actions and conversation among personnel were guarded or hidden or modified in a fashion presumably acceptable in a situation involving an "outsider." During this period the existence of an informal code controlling behavior in the presence of one not "of the profession" was particularly evident. It was not until later, as the observer gained greater acceptance, that this defensiveness was in part dispelled, guards were lowered, behavior became less hidden, and conversation became more free and natural. Never was the observer completely accepted, and even during the interview activities which followed, it was readily apparent that interview respondents were occasionally giving verbal responses inherently inconsistent, or inconsistent with observable overt behavior. This behavior of respondents often was more informative than the content of their verbal responses.

Many impressions were gained during the observation period—particularly impressions regarding the organizational structure of nursing service. It must be emphasized that the impressions reported here are not in any sense to be considered judgments regarding the merit or demerit of any practices in nursing service or nursing service organization, nor in any sense an evaluation of any specific hospital situation. They are intended only and solely to indicate problem areas of which the writer has become aware through reading, observation, and interview.

Administrative organization may be roughly classified as of two types. One of these may be characterized as highly formal, institution-centered organization, while the other is a more informal, individual-centered organization. In the institution-centered organization, even the administrative leaders operate within a framework of established patterns which have become formalized, often having been set down as operating rules, regulations, or policies. In such an organization, policies become institutionalized, and even the administrative leaders can introduce changes only with difficulty. In an individual-centered organization, the administrative leader is the source of policies, rules, and regulations. These may be changed or altered in terms of exigencies of the moment. In the individual-centered organization, heavy responsibility for decision and leadership is placed upon the administrative head, since institutionalized patterns do not exist to provide guidance of lower echelon workers. In the strongly institution-centered organization this responsibility upon administrative head is reduced, since policies and patterns for decision are well known to all.

Each organizational type has certain merits. Institution-centered organization provides great stability with disturbing changes coming but slowly. It is perhaps conducive to efficiency in routine operations. It is the kind of organization that will continue in operation even when administrative heads are not present or are replaced frequently. It provides a kind of security for subordinate workers who rely upon the institution rather than upon the administrative head for guidance and for their rewards. The United States Postal Service is perhaps one of the best examples of institution-centered organization. Among outstanding merits of the individual-centered type of organization is its ability to meet emergencies and to change in terms of temporary needs. It is a more flexible type of organization, but one in which security, in its broadest and best sense, is dependent upon the confidence and trust which subordinate workers have in their leaders.

Nursing service organization in the situation observed appeared in many ways to be of the highly individual-centered type. This seemed particularly true in matters regarding personnel policies of assignment, remuneration, work schedules, promotions and penalties, and delegated responsibilities. Whether this characterizes nursing service administration generally is not known. It seems possible, however, that nursing service organization is forced to be individual-centered and expedient in order to retain adequate personnel. Specifically, if it is difficult to get sufficient nurses at a given salary level, perhaps they may be obtained by making concessions of other kinds, e.g., letting this individual work the particular hours she wishes, letting another individual work the particular days of the week she prefers, selecting employees for whom the job is of secondary importance but who will take it because it can be made to fit their plans, making salary concessions for employees who are particularly needed or desired, and condoning delinquencies which might not otherwise be tolerated. When such practices become necessary, it seems likely that workers would tend to lose the security that comes from "knowing the score," knowing what to expect, or, more precisely, from sharing in common expectation patterns which are not frustrated. It seems likely, also, that with this loss of security would come anxiety and dissatisfaction either with a specific job or with the occupation as a whole, if the characteristic is general.

Another aspect of individual-centered organization is its effect upon middle-level supervisors, in this case the head nurse. Where organization is strongly institution-centered, guiding patterns exist upon which the head nurse may rely and within which she can feel secure. Where such patterns or formal policies do not exist, the head nurse must function in terms of group norms and expectations which evolve within individual units or in terms of her own conception of the role. Thus, within individual nursing units, variation in leadership

activities, organizational activities, and participation activities might be observed corresponding to the differing conceptions of role held by different head nurses. Hypothetical examples of such variation might include the highly autocratic head nurse ruling with iron discipline, the "quarterback" head nurse looking upon her role as one of guiding a team, the "expediter" head nurse devoting her energies to trouble shooting, the "clerical" head nurse preoccupied with records and work schedules, the planner-administrator, and so forth. While strong institutional patterns guide nurses and nursing service in regard to medical matters and nursing techniques, patterns regarding work relationships and personnel matters seem confused and conflicting.

It is to be presumed that the activities of head nurses in accordance with varying role conceptions might have a direct bearing upon the morale and satisfaction of workers whom they supervise, and that certain units would come to be characterized by low or high morale level and tenseness or ease and freedom. It was observed that different "feeling tones" or "atmosphere" appeared to characterize different units. Not by any means could these differences be attributed solely to the head nurse in charge of a unit, but without doubt the head nurse is a key figure in setting the tone and climate of a nursing unit.

A prime factor in any organizational scheme is ease and accuracy of communication both vertically and horizontally. Nursing service, traditionally rigidly disciplined and authoritarian, appears in the observed situation to provide little opportunity for communication except for strictly specified types of information in strictly specified channels and in strictly specified fashion. Not only are such channels cumbersome but they are often insufficient. Nurses apparently find it difficult to secure full information about drugs or medications that may be prescribed. Information placed in the charts often is reduced to a minimum set of hieroglyphics (often illegible) standardized for routine custodial care. The development of personalized nursing plans for individual patients would seem to demand that nurses have adequate and pertinent information from appropriate sources. In the situation observed, there appeared to be little encouragement of upward communication of suggestions, complaints, innovations, or questions within the nursing ranks and there appeared to be little communication between units, except via a "grapevine" route. It was felt that certain aspects of such communication problems may be related to morale level and job-satisfaction.

A lay observer could hardly watch a hospital's activities for any length of time without being impressed by what appear to be strong influences for the depersonalization of care and treatment. The mere number of patients admitted and discharged, the long and crowded operating schedules, and the generally short period of hospitalization would appear to make any high degree of personalization impossible. Add to these such things as the standardization of procedures, prescription, and treatment, at least within broad categories, the standardized packaging of medicines and dosages, the functional specialization of nurses, the utilization of professional jargon which reduces individuals to categories (the C.V.A.'s, B.M.R.'s, E.K.G.'s, "Vegetables," etcetera), and it is less surprising that some nurses come to feel like workers along a conveyor belt. It is less surprising to hear it aserted that the nurse no longer has any interest in a patient when his temperature is down. It is then less startling to hear a nurse say, "We get 'em in, get 'em up, and get 'em out."

The tendency toward depersonalization, if it exists, seems inconsistent with professionalism in nursing and appears to be resented at least by some portion of the nursing personnel. It is, on the other hand, welcomed or at least not resented by some who see themselves primarily as skilled technical specialists and who find in that specialization a freedom from responsibilities which must be shouldered by the head nurse, e.g., I.V. nurses. It would appear that in this depersonalization there is afforded some protection from what might become an unbearable emotional drain upon the nurse. Excessive depersonalization and its counterpart excessive emotional fatigue may be suspected of relationship to dissatisfaction with nursing.

During the observation period, certain impressions developed regarding major organizational cleavages, particularly between nursing education and nursing service. Each appears to have its own unique problems in addition to the common problem of how to coordinate nursing education with nursing service and on-the-job training of student nurses. It would appear that students have supervision from both the head nurse or graduate general duty nurse and the supervising instructor, whose requirements and standards may differ. The student unable to satisfy both is caught in a dilemma which she cannot resolve. The exclusion of instructors from general duty nursing would seem to intensify the separation of nursing education and nursing service rather than alleviate it. The selective recruiting of new students, the selective elimination of students during nursing school, the psychological and social readjustments required of students upon entrance into school, and the provision of adequate personal counseling for students constitute major problems for nursing education quite apart from the technical problem of curriculum content. High withdrawal rates of students admitted to training (27%, 1940; 29%, 1944; 31%, 1945; 32%, 1946) may be partially the result of dissatisfactions having their roots in such problems as these (20).

VIII. The Interview Procedure

During the observation period interview guide schedules and questionnaires had been prepared. Questionnaires were administered and interviews held with 115 nurses during the latter part of August and early September. Nurses were individually released from duty and reported one at a time to the interviewer in a conference room assigned to him. The respondent was given the questionnaire and instructed as to the general objectives of the study. Directions for filling out the questionnaire were explained and the respondent was then asked to check the items it contained.

When this was completed the interview guide questions were introduced in an informal discussion of nursing problems. Following completion of each interview a summary of the discussion and of replies to questions was written as accurately as possible in the blank spaces of the interview schedule.

The interview guide was composed of eighteen questions relating generally to irritations and satisfactions experienced by the respondent in her job relationships, to her perception of the nurse's role, and to motivations for entering nursing. The questions were designed merely to be suggestive of general avenues of discussion rather than as a rigidly structured framework within which the interview was to be held. It was desired that interviews should be as informal and nondirective as possible. The mimeographed form was not submitted to the respondents, nor were the questions asked in any particular order. Often certain questions were omitted. Occasionally the discussion followed other related lines suggested by the respondent's job position, interests, or questions growing out of the questionnaire administered prior to the interview.

Information gained from free responses to general questions is not readily susceptible to rigid quantitative analysis. Reliance upon subjective interpretations of such information may be highly dangerous. Data obtained through informal interview may, however, be suggestive of general areas for further investigation. They may indicate pressures of particular kinds or unusual strains to which an organization and its personnel are subjected. These values were very largely realized in this interview program.

Interviews were ordinarily begun with some variation of the comment, "Tell me, how did you ever happen to get into nursing?" Answers to this question often indicated the influence of some member of the family in establishing an orientation toward nursing. Thus one girl reported she had idolized an aunt who was a nurse, another had an uncle who was a doctor, another had a sister who was a nurse, and still another said, "My mother was a nurse and I just sort of grew up in it." In a large proportion of the cases financial inability to attend college combined with an ambition for some sort of education beyond high school occasioned the decision to enter nursing. In some cases the opportunity to enter nursing provided a chance to leave home and achieve a degree of independence. Very often no explanation could be given further than "I don't know. I just always wanted to be a nurse." Some reported having played at the storybook nurse role as children, when they nursed their dolls using pebbles for pills and sticks for thermometers. Some came into nursing to be with high school girl friends who were at their own level or a year or so ahead. In nearly all cases, real or imagined financial inability to attend college appeared to be either a major or a contributing factor affecting the choice of nursing as an occupation.

Often the respondents were asked "How did your folks feel about your entering nursing?" It was a little surprising to find many reporting strong opposition from parents or grandparents or from male relatives.

In response to questions about the satisfactions derived from nursing, what was enjoyed about it, or what was fun about it, nurses were seldom able to answer further than such answers as, "liked to take care of people," "you enjoy doing something that is really appreciated," "you enjoy the gratitude which patients express for even the smallest service or even when you really don't do anything for them." One reported she "likes to mother the patients as if they were my own husband or child or some relative." One reported she liked "to talk to the patients and go around seeing all the different ones." She had previously been a stenographer and insisted she hated stenographic work because you "just had to sit in one place all the time and never got to see anybody." A good many offered some variation of the comment that there was "nothing particular about it that you enjoy. It's just another job."

Regarding annoyances, irritations, or things they disliked, the respondents seemed more articulate. These annoyances were only occasionally with patients. Instead, the annoyances and irritations very frequently involved some aspect of relationship with fellow workers. Respondents gave such replies as, "The girls are sometimes not congenial. They feel that if you are 'floating' you can just take all the dirty work and the hard jobs." "It's the catty little things that people do or say about each other, the buck-passing or chiseling on work." "Nurses are sometimes too autocratic and shout at you." "There is nothing the matter with the job except the people you work with. I don't mean the patients. I enjoy them but it's the people you work with that get you down." "They [graduate nurses] treat you as if you were stupid and just didn't know anything. Of course we are students, but we would like to be treated as if we were human and not just dirt under their feet." "The casual and impersonal attitude of some of today's students," "graduates who don't do any work, and believe me there are plenty of them. They feel they worked as a student and now they'll get paid for it. If they sit around drinking coffee and smoking it doesn't make you feel like working." And there are "people who cry around about their troubles all the time and don't do any work." Respondents only occasionally indicated annoyances with patients by such responses as "patients who gripe to you about their doctor, or what the doctor orders," "patients who want little things—a glass of water every fifteen minutes," or "patients who are unreasonable in their requests or too 'prissy'." One respondent said she became irritated with patients "who don't show any appreciation for what you do. They ought to at least say 'thank you' because that's about all the pay nurses get." Nurses, when asked, identified units in which they preferred to work and explained the preference usually in terms of "better spirit," or "all the girls just seem to pitch in and help," or in terms of a head nurse who was liked.

The status of "outside" nurse was occasionally cited as a source of irritation. One such response was "You are never allowed to forget you are an 'outside' nurse." Resentment or irritation was occasionally expressed regarding the callousness of some of the nurses, "especially the better educated head nurses or assistant head nurses." It was felt by this respondent that this callous attitude is transmitted to students or needlessly shocks the

students. Uncertainties about freedom to go to superiors with requests or complaints was noted as annoying—"You never know how she'll take it," "She'd just as soon fire you as look at you," or "I'm afraid of her because you never know what she'll do." The lack of explanations or information regarding personnel policies, promotions, and salary increases was occasionally mentioned as irritating and conducive to snooping and suspicion.

In response to the question, "What do you miss or sacrifice by being a nurse?" students noted such things as being isolated from their high school friends, having to break with home and family, the lack of much opportunity for social affairs and meeting fellows that were the "right" kind. Students also were aware of the undesirable labeling or stereotyping of nurses and some reported resentment of it.

While no effort was made to classify rigidly or to categorize responses to interview questions, several general impressions resulted from study of the interview data. Dissatisfactions appeared to be associated chiefly with social and organizational rather than technical functional relationships. Most personnel are guided by strong humanitarian motivations and prefer to deal with patients rather than do paper work. This seems particularly indicated in older nurses. A larger proportion of younger nurses appear to prefer administrative or teaching duties, but even they represent a small minority. There appeared to be little if any evidence of conflict or annoyance with other hospital personnel groups. Occasional resentment was shown toward individual doctors ("there are stinkers in any crowd"), but in general there was strong loyalty to the medical profession. Undoubtedly many evaluations of leadership, of supervision, and of fellow nursing personnel had scant basis in fact. Nevertheless these evaluations reported by respondents constituted the perceived or subjective reality upon which their feelings and actions were based.

IX. The Questionnaire Schedule

The questionnaire administered to nurses in this preliminary phase of the study included a scale for the measurement of job satisfaction, a section designed to yield personal background data, an ideal image scale, a real image scale, and a section designed to yield sociometric data pertaining to adjustment within the work group. The major objective in this procedure was to obtain data which would provide a basis for the revision and refinement of scales to be administered to a more adequate sample of the nurse population. Specifically, it appeared necessary to:

1. Test the feasibility of utilizing an image discrepancy score technique for indirect measurement of job satisfaction.
2. Test the reliability and validity of the scales used.
3. Test the scale items for ambiguities and discriminative power.
4. Seek for indications of relationship between job satisfaction, work group adjustment, efficiency as judged by colleagues, efficiency as judged by director and supervisors, and image regarding nursing functions.

The analytic procedure used in this test of the questionnaire schedule included the coding and scoring of responses, transfer of the data to IBM cards for tabulation, and analysis using chiefly critical ratio and correlation techniques. On the basis of findings from this preliminary phase of the study a more specific focus will be established for the project, and measuring instruments will be revised and refined for use with subsequent population samples.

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Pennsylvania Pilot Study of Nursing Functions

By Otto Pollak, Charles Westoff, and Marvin Bressler

I. Background

The pilot study described in this report was undertaken to facilitate cooperation between the Pennsylvania State Nurses Association and the American Nurses' Association in advancing the research program on nursing functions which was inaugurated on the national level in 1950.

As a preliminary step in the development of the program the ANA board of directors had established a technical committee on "studies of nursing functions" under the chairmanship of Elizabeth L. Kemble, Dean of the School of Nursing at the University of North Carolina. This committee developed rules and criteria pertaining to eligibility for research grants as well as a master plan for studies of nursing functions in hospitals. One rule established by the committee provided that as a precondition for consideration by the technical committee, every application for a research grant must have the endorsement of the appropriate state or territorial association. This decision guaranteed that the differential interests and needs of the memberships of various state organizations would serve as a sort of screening device prior to any authorization for expenditure of research funds accumulated by voluntary contributions from the ranks of the nursing profession.

The Pennsylvania State Nurses Association, aware of the opportunities as well as the responsibilities which this rule implied for the state associations, delegated the research planning function to a special committee under the chairmanship of Ruth W. Hubbard. In the course of its deliberations the members of the committee took cognizance of three distinct but related factors which appeared decisive for constructive planning: (1) the content of the master plan of the ANA's technical committee on studies of nursing functions, which sets forth the facts needed, the types of personnel to be studied, the kinds of hospitals in which the studies might be performed, and which suggests the manner in which research findings might most profitably be utilized; (2) the research areas which seemed most meaningful to the nurses of Pennsylvania; (3) the current status of the national research program with a view to offering proposals which could be integrated with studies already in progress.

The report submitted by the Technical Research Committee of the ANA at the 1952 biennial convention proved particularly helpful in this latter connection. The report suggested that in view of the studies already initiated further research effort might be constructively devoted to determining the optimum use of nursing time by specific groups in specific situations, the nature of interactive patterns and attitudes which affect and concern nursing staffs, and the relationship between education and professional performance.

After prolonged consideration Miss Hubbard and the members of the Pennsylvania committee recommended to the board of directors of PSNA that, as a preliminary step toward the development of a research project which might enlist the aid of ANA, it would be advantageous to sponsor a pilot study under the supervision of qualified research personnel. The pilot study would have as its purpose the identification of areas within the general field of nursing functions which institution-affiliated nurses in Pennsylvania believed needed study and exploration.

With the approval of the PSNA board of directors, the special committee commissioned three staff members of the sociology department of the University of Pennsylvania to conduct the study. Professor Pollak served as the director of the research team and as the senior author of the following memorandum which contains an account of the methodology employed, substantive impressions, and suggestions for subsequent research.

II. Methodology

The adoption of an appropriate methodology for execution of this study necessarily involved three major decisions concerning (1) hospital representation, (2) personnel representation within the hospitals selected for study, and (3) the choice of a specific method of data collection.

A. Hospital Representation

Section III of the ANA master plan and the 1952 report of the Technical Research Committee to the 1952 ANA convention combine to suggest the desirability of taking into account five basic relevant variables with respect to the selection of hospitals which are chosen as units of study. These are (1) type of service, (2) type of control, (3) size of hospital, (4) location of hospital, and (5) presence or absence of a school of nursing. It seemed desirable to construct a study design which would permit representation to each of the following classificatory types:

(1) Type of hospital:
(a) general, (b) psychiatric, (c) communicable diseases

(2) Type of control:
(a) voluntary non-profit, (b) church, (c) city or county, (d) state, (e) federal, (f) private-proprietary

(3) Size of hospital:
(a) small (under 100 beds), (b) moderate (between 100 and 300 beds), (c) large, (over 300 beds)

(4) Location:
(a) rural (community under 5000 population), (b) intermediate (community with population from 5000 to 25,000), (c) urban (community with population over 25,000)[1]

(5) Affiliations with schools of nursing:
(a) school-connected hospital (including those with provisionally approved schools), (b) hospitals without schools of nursing.

All the hospitals in Pennsylvania were classified and cross-classified according to these criteria. The end result of these procedures was the emergence of hospital categories which appeared so frequently in rural, intermediate, or urban locations that they seemed to require particular attention. Altogether seven such categories were identified as follows:

1st group: general, non-profit, small, rural, and non-school of nursing
2nd group: psychiatric, state, large, rural, and non-school of nursing
3rd group: general, non-profit, small, intermediate, and non-school of nursing
4th group: general, non-profit, moderate, intermediate, school of nursing
5th group: general, non-profit, moderate, urban, school of nursing
6th group: general, non-profit, large, urban, school of nursing
7th group: general, non-profit, small, urban, and non-school of nursing

The decision was made to visit two hospitals in six of the groups which appear above and three hospitals in Group 4 in recognition of the fact that this group represents the modal type for all the hospitals in the state. The specific choice of the fifteen hospitals which were selected on this basis was accomplished by means of random sampling. Four additional hospitals were selected from additional strata which were devised to give representation to categories of hospitals which, while numerically unimportant, seemed significant from the standpoint of problem content and more adequate geographical distribution.

Altogether nineteen hospitals were selected, of which seventeen agreed to participate and were actually visited in the course of the study. Individual hospitals are not identified in this report because the nursing situation as it existed in these particular hospitals was not pertinent to our investigation. These hospitals were selected as representative of types which were potentially capable of contributing insights pertaining to personnel and functions which would have ramifications much beyond the immediate situation and which would permit the suggestion of hypotheses and research questions which would meet the needs of the ANA and the PSNA.

B. Personnel Representation

After the hospitals which were to be visited had been selected, it became necessary to reach a decision as to what type of nursing personnel was to be included in the study. In view of the need to distinguish between personnel in hospitals without schools of nursing and hospitals which were school-connected, it seemed desirable to establish contact with the representatives of the following categories in the nursing field:

Hospitals Without Schools of Nursing	*School-connected Hospitals*
Director of nursing	Director of nursing
Supervisor	Director of school of nursing
Head nurse	Educational director
General duty nurse	Classroom instructor
	Clinical instructor
	Supervisor
	Head nurse
	General duty nurse
	Student

The addition of students to the personnel suggested in the ANA master plan was felt to be necessary because of the important role assigned to the relationship between education and nursing by the ANA Technical Research Committee in its 1952 report.

C. Method of Data Collection

In recommending the institution of the pilot study the special committee of PSNA had specified

[1] These operational definitions of "rural" and "urban" are not consistent with those adopted by the Bureau of the Census. Independent evidence suggests that our scheme, while admittedly arbitrary, nevertheless fixes more accurately the population limits within which problems which can be attributed to "location" are roughly comparable.

that the chief method of data collection was to be the interview. However, the committee did not specify to what degree the interviews should be "structured." By joint decision of the research team and the headquarters staff of PSNA it was determined that, in view of the fact that the function of the pilot study was to discover fruitful research areas, a highly structured interview would be undesirable because the very process of "structuring" would restrict responses within a framework of necessarily narrow preconceptions. The PSNA staff was especially anxious to avoid the possibility of intruding their own biases into the research design. A completely "free" interview seemed preferable under these circumstances.

The use of three interviewers also had the effect of reducing any pronounced systematic bias. The members of the research team did not share conceptual convictions which are in all respects similar, and the participation of three men whose selective social perceptions differed had the effect of widening the range of the investigation.

The decision as to whether to employ group or individual interviews was decided mainly on the basis of expediency. It seemed desirable to reach as many people as possible, a decision which meant in effect that students, general duty nurses, and in large hospitals head nurses were interviewed in groups. Administrative personnel and occasionally others were interviewed individually.

All in all some 377 nurses and 11 hospital administrators were interviewed. In order to avoid interference with patient care and hospital needs the selection of specific individuals and groups to be interviewed was left to the discretion of the director of nursing.

In evaluating this research design it should be kept in mind that its purpose was the identification of as many ideas relating to needed research as possible. The findings of this study are intended to be hypothetical and not definitive. It goes without saying that by their nature hypotheses are tentative formulations requiring subsequent validation and do not in themselves represent substantive findings. They should be interpreted in this light and evaluated from the viewpoint of their desirability as a basis for research.

III. Identification of Research Areas

A. The Nurse as a Person

The greater number of ideas which were expressed to us by our respondents seemed to group themselves into several distinctive areas of concern. One of these was the developmental experience of a person who enters and embraces the nursing profession. In this connection we gained the impression that it would be profitable to perform three research projects which we have classified under the headings of "educational experience in nursing," "the impact of room and board arrangements on hospital nurses," and "career dynamics and professionalization."

(1) Educational experience in nursing

The life of student nurses seems to be composed of role demands which are contradictory and may militate against a desirable development of attitudes towards the content of nursing functions.

The first phenomenon encountered in this respect was a conflict between educational requirements and hospital requirements for service from students. Students and school staff likewise complained that the time of students was occupied with services in the wards far beyond any educational needs. Furthermore they were expected to assume responsibilities, such as night duty, which were beyond their levels of maturity.

Secondly, many students complained that the graduate nurses frequently refused to give the specific instructions which would enable the student to accomplish her assigned task, and that graduate nurses treated them in an unfriendly manner and avoided nasty jobs (such as caring for incontinent patients) by the simple expedient of assigning such tasks to students. If these complaints are justified the graduate nurses seem to establish a division of labor between themselves and the students in terms of self interest rather than in terms of educational interest.

Another contradiction seemed to stem from the rules and regulations limiting self direction in the personal life of the students. These restrictions appear to create a dependent "boarding school" atmosphere for a student population which is nevertheless expected to show independence in the service function in the wards.

We found further that the demanding routine of nursing school prevents student nurses from participating in personality developing experiences, such as social activities and summer jobs, which are open to other students of comparable age.

Finally, many students remarked that their older colleagues changed almost immediately after graduation from sympathetic fellow students into graduate nurses who now evinced the same type of behavior traits to which they as students had so recently objected.

All this suggests the hypothesis that *there is incongruity and frustration in the life of a student nurse which are likely to adversely affect her service attitude and to prepare her for compensatory behavior as soon as she gains the status of a graduate nurse.*

(2) Impact of maintenance arrangements on the attitudes of hospital nurses.

Since being hospitalized means for every patient a period of life in which he has to regress to the level of dependency, the person who is responsible for his care over the span of the sick day has a significant influence on the patient's well-being, his

wish for recovery, and his general frame of mind. The patient may feel that the doctor is his main source of hope and strength, but in the minutiae of receiving support and even in his ability to establish contact with the doctor the nurse is of outstanding importance to him. She is the person on whom he must depend for the satisfaction of his needs, either physical or emotional.

Although under existing conditions much of this task is performed by students or practical nurses, the real power in this sphere of patient experience is the graduate nurse. Her attitude toward her job and the balance of her satisfactions therefore are of great importance for the patient. Because of this situation, the nursing profession must be concerned with the question of how nurses feel about their jobs and with whether or not nurses' lives seen in their totality are satisfactory.

One aspect of the living experience of nurses which seemed to account for a high degree of dissatisfaction appeared to be connected with living in nurses' homes. This mode of living seems to perpetuate the boarding school atmosphere of the student years in its disharmony with the responsibility of the job. It seems to promote a complaint atmosphere by building complaint sessions into the routine of living. It seems to prevent a balancing amount of outside interests and perhaps also contact with persons whom the nurses might marry. An additional complication was brought to our attention by one administrator who pointed out that since nurses who live in nurses' homes are always available, are called upon in emergencies, and are sought out for advice by students, they constitute an unofficial emergency crew without any specific reward except in the psychological sphere. This expresses itself in simultaneous feelings of abuse and a sense of self-righteousness induced by their self-appointed roles as guardians of the hospitals.

The temptation of inexpensive room and board for persons who are only moderately paid may drive more people into this form of living than is good for their attitudinal development. There is room for doubt, however, as to whether the hospital custom of providing room and board for nurses who want it creates a healthy atmosphere for them. In terms of a hypothesis this could be stated as follows: *the institutionalization of living as provided by maintenance arrangements in hospitals is not conducive to producing satisfied nursing personnel.*

(3) Career dynamics and professionalization

In every profession the bulk of its membership is characteristically orientated toward upward social mobility by means of individual effort stimulated by an individual aspiration level. Following lines of inquiry suggested by the interest of ANA in the career dynamics of nurses, we found that such individual aspiration levels are rarely in evidence. This seems to be a result of a combination of circumstances. We found from some of the motivations expressed by students that to be a nurse represents to them and to their parents a significant increase in social standing so that no further rise in the social structure seems to be felt as a personal need. Married nurses frequently consider nursing to be a supplementation of their husbands' incomes. Viewed from this angle, the relatively small increase in salary which accrues to the nurse when she attains the position of head nurse, for example, is hardly sufficient inducement for the expenditure of additional effort which such a promotion necessitates. For the single woman, nursing is frequently a temporary occupation prior to marriage. Furthermore, since possible promotions in the nursing hierarchy are limited in number, there is also an appreciation of actual limitation. Another drawback is the expenditure of money which additional preparation implies and the lack of the necessary free time which would have to be invested in such an educational effort.

All this points to the conclusion that the majority of nurses are without much aspiration for upward social mobility in the presently existing formal hierarchy. On the other hand, an adverse effect on the attitude of a nurse toward her job is to be expected if once the initial increments and the initial status have been gained no further advancement can be anticipated.

It would be an important area for research to determine by what means gratification could be provided for graduate nurses who cannot or do not desire to attain higher positions within the existing hierarchy. This suggests the hypothesis that *the creation of a sub-hierarchy between graduate nurse and head nurse by such means as recognition of seniority, visible marks of status, consideration of patient preferences, preferred shifts, and special titles is conducive to increased satisfaction and incentives for general duty nurses.*

B. Intra-Group and Inter-Group Tensions in Nursing

Quite apart from the development of the nurse as a person it is necessary to consider also the interaction patterns of nurses with other nurses and with persons belonging to other groups with which they come in contact. Our interviews suggested the existence of tensions which are likely to affect job satisfaction and nursing care.

(1) Intra-group tensions: tensions among nurses variously placed in the nursing hierarchy

There were repeated suggestions of the existence of conflict among groups of nurses occupying different positions within the framework of the profession. At the top of the hierarchy we found administrators and instructors who live up to the educational standards of professionals, feel and behave like professionals, and are treated as professionals by the members of other professions. On the bottom of the hierarchy we found the students who

are treated as potential professionals by their instructors, by their administrators, and by the doctors. It should be noted also that their instruction is geared to preparing them for professional activities in the future. Intermediate between these two professionally typed groups we found the graduate nurses (general duty nurses, operating room nurses, head nurses, and supervisors) who seem to be disadvantaged in terms of professional recognition, professional work, and treatment as professionals by others. Their only contact with professionalization seems to be a frequently resented pressure to acquire additional education in order to qualify for the positions which they already hold or for higher positions.

Furthermore, despite the fact that doctors expect graduate nurses to function primarily as bedside nurses they tend increasingly to become ward administrators and skilled technicians. In this process they frequently lose the human contact with the patient and leave this most important aspect of nursing to students and auxiliaries. On the other hand, they resent the practical nurses as competitors in terms of status symbols and job content.

In terms of job satisfaction within nursing all of this seems to permit the hypothesis that *nurse administrators and nursing instructors rank highest in job satisfaction, students rank next, and graduate nurses, lowest.* If a study should be made testing this hypothesis it might be possible to locate within the nursing hierarchy that category of nurses which requires the greatest amount of attention in constructive planning.

(2) Inter-group tensions in nursing: tensions affecting the relationship of nurses and categories of persons not belonging to the profession

(a) Role and Status Definitions Affecting the Relationship of Doctors and Nurses

Nurse-doctor relationships appear to be an important item in nursing satisfaction. Elements which seem to disturb this relationship are attitudes of doctors which reject a nurse as a cooperating brain and want to use her only as a doctor-directed but self-propelled hand. Another element seems to be the disruptive influence of status differentials on the inter-professional communication between doctor and nurse. Still a third element is disregard by doctors of hospital routine for which the nurse is responsible. Perhaps the most important factor cited by our respondents was the reversal of the customary behavior pattern between men and women which the doctor-nurse relationship implies. Where else in our society must a woman rise when a man enters the room or where else must a woman treat a man with such pronounced outward symbols of deference and where else must she refrain from questioning his views on a problem in which she too is professionally concerned?

It could be presented as a hypothesis that *doctor-nurse relationships are satisfactory where there is freedom of professional communication, consideration of man-woman equality in professional contact, and respect of doctors for nursing routine.*

(b) Role and Status Definitions Affecting the Relationship of Registered Nurses and Practical Nurses

The only group among auxiliary workers which graduate nurses seem to resent are the practical nurses. The demarcation of two groups in nursing, a professional one with high educational requirements and a vocational one with considerably lower requirements, does not seem free of complications. There appears to be a lack of definition of roles as well as considerable confusion about the desirability of keeping the two groups separated in terms of status symbols such as caps and uniforms. The increasing utilization of practical nurses as a way of meeting the nursing shortage is likely to create considerable discomfort for nurses, and as a consequence also for patients, if the functions and the status symbols of the two nursing groups remain unclarified. Our interviews gave the impression that on the one hand, personnel shortage tempts graduate nurses to utilize practical nurses for relatively skilled tasks while on the other hand, the graduate nurses seem to fear practical nurses as potential competitors. Since this problem requires a solution it is suggested as a hypothesis that *a clarification of roles and status symbols of graduate nurses and practical nurses is conducive to a decline of friction between the two groups.*

(c) Effect of Patient Preferences on Nurses and Nurse Preferences on Patients

As might be expected our interviews confirmed the notion that liking for a patient was an important factor in the quality of service given to him. All the nurses who talked about this aspect of their work said that they gave every patient "the proper" amount of care but that "the little extras" were given only to favorite patients. In addition "nursing was fun" when you liked the patient. Under these circumstances it might be well to determine what general classes of patients are preferred by nurses and to find ways and means to increase the job satisfaction of nurses who are obliged to care for patients in the nonpreferred classes.

We found some indications that men were preferred to women patients, children to adult patients, and surgical cases to medical cases. We found also that communicable diseases caused some anxiety to nurses and that psychiatric patients in state hospitals gave nurses a feeling of hopelessness. In addition we discovered that private and semiprivate patients were not so well liked as ward patients because they demanded a host of services of the type which should more appropriately be supplied by a valet rather than by a skilled professional.

The existence of these preferences, if confirmed by subsequent research, seems to pose serious problems in view of predictable trends involving the proportionate increase of certain kinds of patients

in the hospital population, i.e., patients suffering from chronic illnesses, psychiatric patients, and health-insurance-financed patients with semiprivate accommodations. It seems safe to assume that nurses will find it increasingly more difficult to be assigned to classes of patients for whom they have some special preference.

The entire problem area could be elucidated by a study based on the hypothesis that *nurses who care for non-preferred patient groups require professional and ego gratifications other than those resulting from the role of the effective helper, the maternal role, and from the experience of contributing to rapid recovery, which are gratifications which are available to those dealing with preferred groups. In the absence of such gratification important patient groups will not receive maximum nursing care.*

(d) Role and Status Definitions Affecting the Relationship of Nurses and Members of Other Hospital Departments

One of the factors which affects the status of a profession and the feeling of self-worth of its members is the degree of satisfactory interaction which exists between itself and allied professions. One form of constructive interaction is mutual consultation. Our interviews revealed that in some hospitals nurses were not consulted by purchasing departments acquiring new equipment or by hospital administrators in charge of planning the physical plant of new hospitals. The latter complaint is of special interest in view of the physical discomfort which a poorly designed hospital can impose on nursing personnel. Moreover, it may be that nurses by virtue of their continual observation of patient reactions are in an especially good position to suggest ward design which might increase the physical and emotional well-being of the patients. This area of concern might lend itself to study under the hypothesis that *the status of the nursing profession in hospitals is not recognized in planning by other departments and that lack of such consultation prevents full utilization of nursing experience for maximum efficiency of the plant.*

C. Educational Content in Nursing Preparation and Job Requirements for General Duty Nursing

The trend toward higher educational standards in the preparation of nurses as fostered by the established schools of nursing seems to encounter resentment among doctors as well as among graduate nurses. This appears to require clarification. For what position in nursing do the schools actually prepare? If they prepare for professional work their standards are certainly justified. However, if this is the case, there should be some awareness of the fact that there are functions in nursing which do not require such extensive preparation and for which in fact this preparation creates the wrong attitude. Particularly, the schools do not seem to prepare personnel satisfied to be engaged in bedside nursing. On the other hand, the bedside nurses produced by the schools for practical nurses encounter the resentment of graduate nurses.

This would seem to suggest the hypothesis that *nursing education in the established schools of nursing requires a two-fold curriculum, one for vocational bedside nursing, possibly with only two years of training, and one for professional nurses equal to a four-year college curriculum geared to a program which would qualify the students for administrative and teaching positions in nursing.*

Another way to formulate this problem for study purposes is to state it in terms of the hypothesis that *the present curriculum in schools of nursing contains material which is not used by general duty nurses and omits material which a head nurse, a supervisor, a director of nurses, or an instructor in a nursing school needs in the performance of her job.*

Since the inadequacy of the general curriculum for administrative and teaching positions is already implied in the additional educational requirements for these jobs, validation of the hypothesis would require only a comparative study of the job requirements of general duty nurses and the content of the curriculum. If such a study should lead to the establishment of a basic two-year curriculum for vocational bedside nursing, some aspects of the nurse shortage and the discomforts which characterize the role of practical nurses might be alleviated.

D. Aspects of Personnel Shortage Accessible to Remedial Measures From Within the Profession

The problem of personnel shortage is ever-present in nursing and has many ramifications. It was mentioned repeatedly by our respondents. However, the problem was largely conceived in terms of the need for additional personnel. Only occasionally did we encounter any expression of ideas which suggested means by which personnel shortage could be remedied, at least in part, from within the profession by more efficient use of existing nursing personnel. Because of the potential values of these suggestions we have tried to crystallize them in the form of three research proposals.

(1) Personnel shortage and motivation in professional choice

In every profession composed largely of women the problem of loss of membership for reasons other than death or retirement due to age is a special problem. It means a large turn-over and an over-investment in education. It might be useful therefore to identify those factors characterizing first-year students and perhaps even applicants for admission to schools of nursing which seem to justify an expectation of relatively permanent membership in the profession. In our interviews we found some clues in this respect.

The reasons for the entrance of young people into nursing seem roughly to fall into two groups: reasons which are likely to keep a person in the profession more or less on a life-time basis, and reasons which are likely to dispose a person to leave the profession at a relatively early time. Obviously a genuine service motivation would seem to hold the greatest promise of a person's remaining in the profession. However, we found it difficult to gain any clear impression of the real motives of our respondents because, since "service" is the socially accepted response, their statements in this respect seemed somewhat stereotyped. Within the limitations of this pilot study it was not possible to distinguish mere verbalization from a sincere expression of a service motivation.

However, there are less stereotyped statements of motivation giving reasons which might justify the expectation that persons so motivated are likely to remain in the field. Such reasons are the rise in social status which in the eyes of the student or the nurse accompanies entering the profession of nursing, the psychological identification with nurses whom they have admired, a rational appraisal of the job security offered by the profession, an interest in science, and respect of nursing arts acquired by observation or as a patient.

On the other hand, such motives as attraction to the glamor of the uniform, the utility of nursing information for purposes of motherhood, self-concern with health, getting an education which is less expensive and shorter in duration than college training, gaining socially acceptable time to seek a husband, preferably a doctor, seem to offer a relatively poor prospect for a prolonged membership in the profession.

These considerations suggest the following hypothesis: *students who see nursing as a means of satisfying their needs for upward social mobility and economic security are likely to go into nursing as a lifetime proposition, possible interruptions in connection with child bearing and child rearing notwithstanding. Students who consider nursing only as a means to other forms of satisfying their desires for upward social mobility or security are likely to spend only a relatively short period of their early adult life in the profession.*

If such a study should prove that students can be screened from the point of view of probability of time which they will spend in the profession, a more stable body of personnel might be developed among nurses.

(2) Personnel shortage and non-professional job content of graduate nursing

Some of the nurses whom we interviewed expressed the opinion that another possible contributing element to the shortage of nursing personnel is the nonprofessional job content of the work load of graduate nurses. It was felt that considerable time was taken up by purely clerical functions which could better be handled by secretarial help. Others, particularly operating room nurses, felt that they were overly burdened with menial cleaning functions. Nurses in private and semi-private sections felt that they had to perform a considerable amount of valet service. All these activities could conceivably be transferred to non-nursing personnel, thus releasing nursing time for professional tasks. This problem could be studied by testing the hypothesis that *the time required for non-professional work which graduate nurses are called upon to perform, such as clerical and housekeeping tasks, represents an important source of personnel shortage in nursing.*

(3) Personnel shortage and attitudes toward the employment of older nurses

A factor contributing to the shortage of nursing personnel might lie in the attitudes of directors of nurses toward hiring certain types of applicants. For instance, it is well known that discriminatory hiring policies frequently operate against older persons. An interesting study might be the investigation of the hypothesis that *a reluctance to hire older nurses is positively associated with the nursing shortage.*

The same problem could be studied on a broader scale by investigating the nature and type of job applicants who directors of nursing feel are unacceptable.

E. The Relationship Between "Authoritarian" and "Democratic" Organization and Morale

The hospitals visited tended either toward a form of organization which may be called "authoritarian" or toward one which may be called "democratic." Authoritarian organization in its pure form —which, to our knowledge, did not exist in all aspects anywhere—consists of the following elements: (1) Adoption and implementation of administrative policy without consultation with nurses or their representatives. Such policies include the design of new buildings, purchasing of materials, settling of grievances, and definition of personnel policy; (2) Insistence on the recognition of a formalized stratification system augmented by formalized symbols of deference such as rising when superiors enter, proper and formal address of other persons, and maintenance of uniform distinctions; (3) Delimitation of functions and assignments in terms of great specificity and little encouragement for the exercise of initiative. By contrast, democratic organization in its pure form—also never encountered by us—is characterized by: (1) Adoption and implementation of administrative policy as a result of group discussion, with some cognizance taken of contributions offered by the participants; (2) Minimum emphasis of existing stratification in terms of symbols of deference; and (3) Fluidity of functions and appreciation of private initiative. It was not possible to arrive at any clear-cut and definitive decision as to which of these organization-types or their variations tended to promote more satisfac-

tory nursing morale and to encourage better nursing care of patients.

As a prior condition to the study of the relationship between an "authoritarian" or "democratic" organization and morale, it would be necessary to arrive at some measurable criteria of morale. Such criteria might be devised by qualified research personnel in conjunction with hospital administrators, directors of nurses, and others. They might include, for example, such things as degree of staff turnover for reasons of grievance, spontaneous expression of willingness to work over-time in emergency situations, et cetera. Once having established criteria for morale it would be necessary to identify hospitals whose organizations were more nearly similar to the ideal authoritarian pattern and hospitals reasonably representative of the democratic pattern and also intermediate types in order to discover in which of these three categories morale seems to be highest.

IV. Further Steps

As already indicated, our task consisted of identifying areas for research which in the opinion of nurses are needed to promote the interests of their profession and of their patients.

The proposals made in this report may have different priorities in terms of their value within the framework of these two purposes. It may also be that they would present different degrees of feasibility from the point of view of research design. It would appear to be the task of appropriate committee and research personnel to make a decision as to which specific project or projects should pass from plan to implementation.

CONTRIBUTORS TO THIS ISSUE

(*Continued from page 2*)

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Are Organisms Introduced Into Vials Containing Medication When Air Is Injected?

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I. Introduction

IN this age of extensive medicinal therapy, many drugs are dispensed in vials. The number of drugs so dispensed appears to be increasing with the rapid advancement of medical science. This type of container is convenient and economical for use in the hospital and in the home. It is convenient because it saves time in manipulation; it is quicker to puncture a rubber stopper than to break an ampule or to prepare a solution from a tablet. It is economical because the cost per unit of drug is less when packaged in multiple doses.

However, there are several factors which may present problems in regard to the safe and easy removal of a drug from a vial. One factor, which forms the background for this study, pertains to the problem of removing the solution from a vial easily—that is, without creating a partial vacuum. It is the practice in many hospitals to inject air into the vial before withdrawing the medication. The added air makes the pressure within the vial greater than the pressure outside the vial thus facilitating the removal of the medication. The problem then arises: are organisms introduced into a vial when air is injected before withdrawing a solution?

Our research group could see other aspects to the problem. Air is used not only in the withdrawal of solutions from vials but also in other hospital procedures. Air is injected, for instance, into sterile body cavities, in such procedures as the pneumothorax, the pneumoperitoneum, and the pneumoencephalogram. The original problem with its ramifications stimulated us to investigate through experimentation the possibility of contaminating a medication in a vial by the injection of air.

The group felt that the procedure of injecting air into a vial was accepted and used in most hospitals, but in order to confirm this opinion, the group began to question some of the graduate nurses employed in the University Hospitals of Cleveland, Ohio. Many of these nurses had received their education in schools connected with other hospitals in the United States. From this local cursory survey the following information was gained: Some nurses had been taught to draw into a syringe and inject into a vial an amount of air equivalent to the desired amount of solution. Others mentioned the possibility of contamination with the introduction of air and merely drew the solution into the syringe. There were still other nurses who were taught not to inject air but learned through experience that the preliminary introduction of air facilitated the withdrawal of the solution. Similar results were obtained from a questionnaire which was presented to twenty-three nurses, whose nursing background represented eighteen different foreign countries.

The next question which followed in the logical development of the problem was: If organisms are introduced into rubber-stoppered vials, will these organisms remain viable in the medication and be introduced into the tissues of a patient? Many pharmaceutical preparations contain a preservative intended to act as a bactericidal or a bacteriostatic agent; hence it was realized that organisms which were introduced might be killed within a short period of time. It seemed important, however, to extend the scope of the problem to include the testing of the viability of organisms placed in one medication. Consequently a preliminary experiment was performed.

Crystalline insulin was selected as the test drug

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for the following reasons: crystalline insulin is a clear liquid in which the growth of organisms would show as turbidity; it is relatively inexpensive and can be obtained easily; insulin is used frequently in the hospital and in the home. A time interval of 24 hours was chosen as the period between the inoculation of the insulin with organisms and the removal of a sample to determine if organisms were present. The insulin was kept in the refrigerator for this 24-hour interval. The low temperature of the refrigerator and the 0.1 percent phenol in the insulin aid in retarding the growth of organisms.

From a vial containing 10 cc. of crystalline insulin, 2 cc. were pipetted into each of five sterile test tubes. Each test tube was inoculated with one of the following organisms: *Escherichia coli, Staphylococcus albus, Bacillus mycoides,* a yeast, and a blue-green mold. After 24 hours in the refrigerator a sample from each tube was streaked on nutrient agar plates and incubated for an additional 24-hour period at room temperature (22° C.). At the end of this time there was growth of *Escherichia coli, Staphylococcus albus,* and the blue-green mold. There were no colonies on the yeast and the *Bacillus mycoides* plates.

Because growth was found on three of the five plates, the problem became more important to the group. Conclusions could not be drawn from this very limited experiment, but it suggested that, if organisms were introduced into insulin, they might remain viable. Consequently, the original problem was enlarged to include two questions: Are organisms introduced into a vial when air is injected prior to the withdrawal of a solution? If so, will these organisms remain viable in crystalline insulin after 24 hours in the refrigerator?

Objectives

In planning the study of this problem, the writers were guided by four main objectives:

1. To determine whether organisms are present in that volume of air which is injected into a vial prior to the withdrawal of a solution.
2. To determine whether these organisms will remain viable in crystalline insulin under refrigeration for a 24-hour period.
3. To interpret the findings of this experiment in relation to parenteral administration of medication.
4. To develop skill in applying the principles of research in solving a problem.

Definition of Terms

In the study it was necessary to use a certain number of terms in a restricted sense. The following terms are defined briefly to provide a clearer interpretation, and whenever they are used they will denote these specific meanings:

1. Syringe.—a 2 cc. Luer-lok syringe equipped with a 22 gauge needle, 1½ in. long.
2. Vial.—a 17 cc. bottle with a rubber serum-sleeve-type stopper.
3. Turbidity.—cloudiness of media due to the growth of microorganisms.
4. Media.—substances used for the cultivation of microorganisms.
   (a) *Tryptose Broth.* — Bacto-Tryptose Broth is prepared without extract or infusion of meat and is recommended as a general laboratory medium for the cultivation of discriminating pathogenic as well as saprophytic bacteria. Bacto-Tryptose, in a 2 percent concentration, satisfactorily replaces the usual infusion peptone portion of many media.[1]
   (b) *Thioglycollate Medium.* — Bacto-Fluid Thioglycollate Medium conforms to the formula specified by the National Institute of Health, for the sterility testing of biologics, and for the sterility testing of antibiotics according to the method of the Food and Drug Administration. The medium is prepared according to the formula given for Thioglycollate Medium in the U. S. Pharmacopoeia and the National Formulary. It may be recommended as a liquid medium for the cultivation of anaerobes.[2]
5. Run.—a performance of the experiment utilizing twenty vials of tryptose broth and twenty vials of thioglycollate medium.

Assumptions

In planning the study of the problem it was first necessary to assume certain fundamental facts. Each statement expressed in the following paragraphs is basic to the study. It is assumed:

1. That all of the equipment and media used in this experiment were sterile since they were prepared by the personnel of the Institute of Pathology of University Hospitals.
2. That all of the participants in this experiment followed the designated procedure since a verbal interpretation of the written instructions was given and since each participant demonstrated her ability to carry out the procedures involved.
3. That the number of vials used in the experiment was sufficient to form a basis for drawing valid conclusions.
4. That the seal of the serum-sleeve-stoppered vial used in the experiment was effective since the serum-sleeve-stoppered vial is used by pharmaceutical houses in dispensing sera.
5. That the media selected, tryptose broth and thioglycollate medium, and the methods used for incubating the vials of media provided favorable conditions for the growth of common air-borne organisms.
6. That organisms will grow after being injected into these media by way of air since known organisms, which were introduced into media under laboratory conditions, grew in the control vials.
7. That turbidity of liquid media is a valid index of growth of microorganisms.

Limitations

Every research study has definite restrictions which may be related to time, facilities, limited knowledge or experience. It was the aim of the workers to reduce these restrictions to a minimum. However, three limitations remain:

1. The members of the group were aware

[1, 2] *Difco Manual of Dehydrated Culture Media and Reagents for Microbiological and Clinical Laboratory Procedures.* 8th edition. Detroit: Difco Laboratories, Inc., 1948, p. 142, p. 76.

that their background in microbiology was limited.
2. The experiment was limited by the inability to determine the presence of viral, rickettsial and some fastidious bacterial organisms due to the fact that the above organisms require special methods for cultivation beyond the facilities available in this experiment.
3. The survey of the literature was limited to material written in or translated into the English language.

II. Survey of the Literature

It was believed that problems similar to this one might have been studied previously by some of the pharmaceutical companies and that they might be able to contribute information pertinent to this study. Letters requesting such information were sent to twenty companies, all of whom replied; interest in this problem of research was evident from the type of response of many of the companies.

The following is a brief summary of their comments and the number of times each occurred;

1. There is no known research or study.... 8
2. Studies were cited in relation to the possibility of contamination by the rubber stopper of the vial 4
3. Complete details on the research which has already been conducted on this subject are available in the local technical library 1
4. Possibility of microorganisms being introduced when air is injected into the vial 11
5. The possibility of contamination of vials by the introduction of air is so slight that it is not considered a problem..... 5
6. If good medical technique is used, there is no danger; however, if gross contamination occurs, there may be some danger of infection 1
7. In single dose packages the period of time between the introduction of air and the administration of the medication is so short that no reproduction of the introduced organisms could occur..... 2
8. The Food and Drug Administration disapproves of the preparation of rubber-stoppered vials which contain more than a recommended maximum number of doses 1
9. An antibacterial agent or preservative is used in vial 7
10. Vials should be stored at a temperature between 0° C. and 15° C..... 1
11. Insulin contains phenol or cresol and has a low pH 6

The authors searched the literature for an accepted technique of withdrawing solution from a vial. The procedure outlined in a number of references can be summarized by Tracy's statement:

> The syringe and needle are sterilized, the top of the vial cleansed with alcohol, and the same amount of air drawn into the syringe as will equal the dose of medicine. . . . The needle is then inserted through the diaphragm, the bottle held inverted with the left hand, and the air forced into the bottle. The solution may then be very easily withdrawn from the vial in the required amount (1).

Rothweiler and White state that air is injected into the vial to replace the fluid to be taken, thus avoiding the creation of a vacuum in the hermetically sealed bottle which would make it difficult to withdraw the solution (2). Other authors such as Young (3) and Montag and Filson (4) give a similar explanation for using this technique of injecting air.

In order to approximate conditions under which medications may be prepared for injection, the experiment was conducted under such environmental conditions as sweeping, bed-making, and crowded conditions where there were a number of persons present who talked, coughed, laughed, or merely observed the procedure. Therefore it seemed logical to the authors that the survey of the literature which might reveal information pertinent to this study would include the following specific topics: (1) microorganisms in the air; (2) some factors which affect the number of these organisms such as the settling rate of organisms, the horizontal dispersion of organisms, the effect of crowded conditions, the effect of sneezing and coughing; the effect of talking, and the effect of sweeping; and (3) the viability of the organisms of the air.[1]

The survey of literature revealed that microorganisms do exist in the air and that the number of organisms is affected by such conditions as the settling rate, horizontal dispersion, crowded conditions, sneezing, coughing, speaking, sweeping, and the viability of organisms. The literature revealed many contradictory statements, some of which are concerned with the number of organisms present in the air. This may be due to the fact that the air-borne organisms are widely dispersed and as yet there are no instruments accurate enough, nor media suitable, to demonstrate the total air flora. Since the ineffectual methods of today do not always give an accurate picture of the organisms present in the air, this might account for the wide variations in the results presented in the literature which was reviewed. Nevertheless, this material is related to the study and serves to give the basis for the interpretation of the findings.

III. Method of Study

The experiment was planned in two phases to correspond to the two parts of the statement of the problem: (1) Are organisms introduced into a vial when air is injected prior to the withdrawal of a solution? (2) If so, will these organisms remain viable in crystalline insulin after 24 hours in the refrigerator?

Equipment

All equipment was prepared and sterilized by the Media Department of the Institute of Pathology

[1]The major portion of this section is omitted in this condensed form of the study.

of University Hospitals of Cleveland. The first phase of the experiment required the equipment described below:

Two cubic centimeter Luer-lok syringes and 22-gauge, 1½-in. needles were used. Each clean assembled syringe with the needle attached was put into a test tube, and the mouth of the test tube was covered with two thicknesses of paper held in place with string. The syringes in the test tubes were autoclaved at 121° C. for twenty minutes. The syringes and needles were packaged in this manner to keep the handling of the equipment to a minimum, thus reducing the possibility of contamination.

The vial used in the experiment had a capacity of 17 cc. The quantity of medium in each vial was 10 cc. Tryptose broth was put into vials which were then capped. Two layers of muslin were placed over the rubber stoppers and secured with string. The vials were autoclaved at 121° C. for twenty minutes.

The thioglycollate medium was heated to drive off the oxygen and poured into hot sterile vials which were immediately capped; two layers of cloth were placed over the rubber stoppers and secured with string. The vials were autoclaved at 121° C. for twenty minutes.

The rubber stoppers were covered with cloth before autoclaving so that the stoppers would remain sterile until the experiment was performed. Since the purpose of this experiment was to test only for the organisms present in the air, the possibility of introducing organisms from nonsterile equipment had to be excluded.

A system of labeling was devised to identify each vial throughout the course of the experiment. A small piece of paper on which the code number was written was affixed to each vial by means of cellophane tape. All the vials containing tryptose broth were identified by a capital letter A; those containing thioglycollate medium were identified by a capital letter B. The vials with corresponding numbers were considered pairs, for example 1A and 1B, 2A and 2B.

Information concerning the conditions existing at the time air was injected into each vial was observed and recorded. The name of the experimenter, the date, the place, and the surrounding conditions were recorded on prepared forms. This information was later transferred to a master data sheet.

The second phase of the problem deals with the question of whether organisms will remain viable in crystalline insulin after 24 hours in the refrigerator. This phase of the experiment required the following equipment:

Vials containing 10 cc. of U-40 crystalline insulin with 0.1 per cent phenol preservative were obtained. The solution from each vial was divided into 2 cc. portions and transferred to sterile test tubes by means of a sterile pipette. Two cubic centimeters of sterile normal saline were put into each of five test tubes to be used as a control for the insulin.

Tryptose agar in Petri dishes was used for streak plates for material removed from the insulin and saline.

Controls

Before the experiment was begun it seemed advisable to determine whether common air-borne organisms would grow in the media under the conditions provided in the experiment. The aerobic organisms used in this control were a blue-green mold taken from an agar plate on which the mold had fallen from the air, a yeast of the genus *Torula,* and the following bacteria: *Staphylococcus albus, Bacillus subtilis, Streptococcus viridans,* and *Diplococcus pneumoniae.* Two-tenths of a cubic centimeter of a suspension of each of the above organisms was introduced into a separate vial of tryptose broth. The vials of this medium were incubated at 37° C. for 48 hours. The tryptose broth inoculated with the yeast, and that inoculated with each of the bacteria, was turbid after incubation at 37° C. for 48 hours indicating that organisms were present in great numbers. The broth inoculated with the blue-green mold was clear after 48 hours in the incubator, but growth appeared after the medium was incubated for an additional 48 hours at room temperature.

Clostridium perfringens was the organism used to determine whether anaerobic conditions existed in the thioglycollate medium. Two-tenths of a cubic centimeter of a suspension of this obligate anaerobe was introduced into a vial of thioglycollate medium and incubated at 37° C. for 48 hours. A flocculent cloudy growth and gas bubbles appeared in this medium, thus indicating that it did support the growth of a common anaerobe.

Experiment

Early in the planning of the experiment it became necessary to select the locations in which the procedure of injecting air into the vials of media should be carried out. It was the aim of the experimenters to duplicate the conditions under which this procedure is ordinarily carried out in preparing medications for administration. Injections are now given to patients in the home as well as in the clinic and the hospital. Medications for the hospital patient may be prepared in the division utility room or at the patient's bedside. These four areas were chosen for the performance of the experiment: (1) a patient's bedside unit on any division of University Hospitals of Cleveland, (2) any utility room in the hospital, (3) any clinic in the hospital, and (4) any home visited by students having experience with the Cleveland Visiting Nurse Association.

The eight members of the group working on the project performed the experiment in the three hospital areas. The procedure was carried out in the homes by five students from the Frances Payne Bolton School of Nursing who were having their experience with the Cleveland Visiting Nurse Association. The same thirteen individuals performed the entire experiment.

In order that the technique used by the experimenters should be uniform, each one was instructed to carry out the following procedure:

1. Check the code number on the vials to

make sure they are in pairs.
2. Cut the string on one vial of tryptose broth; do not remove the cloth covering.
3. Cut the string and remove the paper cap from the test tube containing a sterile syringe.
4. Remove the syringe.
5. Holding the syringe vertically, pull the plunger back to the 1 cc. mark.
6. Remove the cloth covering from the tryptose vial.
7. Holding the vial horizontally, insert the needle to the hilt.
8. Move the vial to the vertical position, and inject the 1 cc. of air.[1]
9. Withdraw the vial from the needle and set the vial on the table.
10. Replace the syringe in the test tube.
11. Repeat steps 1 to 10 using the vial containing thioglycollate medium and another sterile syringe.
12. Record the desired information on the data sheet.
13. Place the data sheet around the two vials and secure with a rubber band.
14. Place the vials in the incubator as soon as possible.

A trial run was the first part of the experiment. This run was to be included as an integral part of the experiment if no problems were encountered. In this run forty vials of media were used: twenty of tryptose broth and twenty of thioglycollate medium. The twenty pairs of vials were distributed equally among the four locations, five pairs being taken to each of the selected areas (patient's bedside, utility room, clinic, and home) for the performance of the procedure. Since no serious problems were encountered, the trial run was incorporated into the experiment and each of the four succeeding runs was performed in the same manner. The five runs extended over a period of five weeks, one run being performed each week. A total of 200 vials was used, 100 vials of each type of medium. This was thought to comprise an adequate sampling.

The vials were placed in the incubator (37° C.) at the earliest possible time after the air had been injected. Forty-eight hours later the media were observed for turbidity, an accepted indication of growth of microorganisms. The vials containing tryptose broth were incubated at room temperature for an additional 48 hours. This was done because previously it had been found that a mold did not show evidence of growth after incubation at 37° C. for 48 hours, but did show evidence of growth when incubated at room temperature for an additional 48 hours. The vials containing thioglycollate medium were returned to the incubator where they remained for 15 days. This period of incubation conforms to the recommendation of the Pharmacopoeia of the United States in the outline of a technique for conducting a sterility test for sutures under anaerobic conditions: "Cultures of sutures are incubated at 37° C. for fifteen days before negative results are recorded."(5)

At the end of each experimental run, the media used were inspected for evidence of growth by Dr. Robert F. Parker, Associate Professor of Microbiology and Medicine, School of Medicine, Western Reserve University, Cleveland, Ohio, who served as consultant to the research group.

In the event that turbidity of the broth appeared, the following procedure was carried out as the second phase of the experiment. A loopful of the turbid broth was put into a test tube containing 2 cc. of crystalline insulin. Another loopful was put into a test tube containing 2 cc. of normal saline, to be used as a control for the insulin. The inoculated saline solution was streaked on tryptose agar immediately. The tryptose agar was incubated for 48 hours at 37° C. and for an additional 48 hours at room temperature.

The insulin containing the loopful of turbid broth was placed in the refrigerator for 24 hours to simulate conditions under which insulin is ordinarily kept. A period of 24 hours was chosen because insulin vials are often taken from the refrigerator only once a day for the administration of the drug and because it was a time interval adaptable to the experiment. Following this period of refrigeration a sample of the inoculated insulin was streaked on tryptose agar which was placed in the incubator at 37° C. for 48 hours and at room temperature for an additional 48 hours. The amount of growth on these streak plates was noted and compared with the amount of growth observed on the control plates which had been streaked from the inoculated saline solution.

IV. Findings of the Experiment

The Controls

As described in the preceding section, a control run was made. Vials of tryptose broth were inoculated with some of the common air-borne organisms. After sufficient periods of incubation, the bacteria: *Staphylococcus albus, Bacillus subtilis, Diplococcus pneumoniae,* and *Streptococcus viridans;* a yeast; and a blue-green mold all showed evidence of growth.

The thioglycollate medium, after being inoculated with the anaerobic organism, *Clostridium perfringens,* and incubated for 48 hours, revealed a flocculent cloudy growth with gas bubbles, indicating the growth of an obligate anaerobe.

Results

The findings of all five runs of the experiment were identical. They were negative for both tryptose broth and thioglycollate medium for the four locations tested: the home, the hospital bedside, the clinic, and the utility room.

Analysis of Data

After analyzing the data from each run, it is interesting to regroup the results according to the locations where the air was sampled: the home, the hospital bedside, the clinic and the utility room.

The Home Situation.—All twenty-five pairs of vials of tryptose broth and thioglycollate medium, injected with samples of air from various homes,

[1]One cubic centimeter of air was chosen because it represents an amount of medication frequently given.

were negative for growth of microorganisms. Samples of air from different parts of the home were tested. Air was sampled from the kitchen, the bedroom, the living room, and the hall. The condition of the rooms from which air was taken varied throughout the experiment. Some of the rooms were reported to be clean and others to be dirty. The number of persons present at the time of the experiment ranged from one to eight. There were times when the experimenter was alone; there was another situation in which a mother, six children, and the experimenter were present. It is significant to note that air sampled from a recently swept kitchen and from a quiet clean kitchen both produced negative results. There was activity and more than one person present in twelve of the twenty-five rooms from which air was sampled.

The Hospital Bedside.—All of the twenty-five pairs of tryptose broth and thioglycollate medium, injected with air at the patients' bedsides throughout University Hospitals of Cleveland, showed negative results for growth of organisms. As might be expected, there were more persons present and greater activity while the air samples were taken from this general location than from the previous location. The activity included the sweeping of floors, the making of beds, and a child coughing. It is interesting to note that air sampled from the bedside of a sleeping patient, and from the bedside where six persons were present while a doctor changed a patient's dressings both showed negative results for growth of organisms.

Clinics.—The findings were negative for the twenty-five pairs of vials of tryptose broth and thioglycollate medium injected with air in clinics throughout University Hospitals of Cleveland. It is apparent that there was much activity in this general location as well as in the location previously discussed. In more than three-fourths of the clinics where air was sampled there were more than three persons present. There were ten persons present and engaged in varied activity in the gynecology clinic. Samples of air were also taken from the pediatric clinic while several adults and children were present. For contrast, it may be noted that air was also sampled from clinics in which the experimenter was alone. The same results were obtained from both the crowded and empty clinics; no growth of organisms.

Utility Rooms.—All results from air sampled in the utility rooms of University Hospitals of Cleveland were negative for the growth of organisms. There were fewer people in this general location than in the two preceding locations. There were two or three persons present while most of the air samples were taken, and there were never more than four persons present at one time. Air samples were taken while the floor was being swept and while an electric fan was blowing. In many instances people were passing through the utility rooms. Again, in contrast, several samplings of air were taken under very quiet conditions while the experimenter was alone. The same results were obtained when samples of air were taken under the above-mentioned contrasting conditions.

V. Interpretation of the Findings

The findings reveal that there was no evidence of growth of organisms in any of the 200 vials of nutrient media into which air had been injected. How can one account for the fact that all the findings of this experiment were negative?

It may be questioned whether the media used met the requirements for growth of microorganisms if they had been introduced. In other words, is it possible that organisms were introduced along with the air, but the provisions for growth were inadequate?

By surveying the literature it was learned that certain microorganisms are commonly found in the air. When some of these aerobic organisms such as a blue-green mold; a yeast of the genus *Torula;* and the bacteria: *Staphylococcus albus, Bacillus subtilis, Streptococcus viridans,* and *Diplococcus pneumoniae* were each introduced into vials of tryptose broth and incubated at 37° C. for 48 hours, growth appeared in each of the vials of medium. Likewise *Clostridium perfringens* was introduced into vials of the thioglycollate medium to determine if it was possible for this medium to support the growth of an obligate anaerobe. Typical growth of this organism was evident at the end of 48 hours.

Another aspect of this question was: would anaerobic conditions be maintained for the 15-day period of incubation in the relatively small quantity of thioglycollate medium, prepared in the manner previously described? It was noted that after the thioglycollate medium had stood for a day or two there was a dark layer at the top which is an indication of the presence of oxygen. Dr. Parker, our consultant, was questioned regarding this. He conducted an experiment in which he used vials of thioglycollate medium that were twenty days old. He injected dilutions of two organisms, *Clostridium perfringens,* and *Clostridium bifermentans,* into this medium and growth was evident in every vial. It was interesting and significant that even after the last dilution, which contained fewer than ten organisms, growth was present in the thioglycollate medium. The results from these controls, therefore, would seem to indicate that the nutrient media were satisfactory to test for the presence of common microorganisms found in the air.

By what means did the experimenters determine that all the vials were negative for growth? Turbidity of the media was used as the criterion because turbidity indicates the presence of microorganisms. Smith and Martin in *Zinsser's Textbook of Bacteriology* state there are three methods in general use for counting bacteria, one of which is the turbidity measurements on broth cultures (6). Dr. Parker said,

> Any turbidity of either the tryptose broth or the thioglycollate medium is adequate proof of the presence of microorganisms in the media. Likewise, the lack of turbidity (the broth remaining clear or slighty translucent as in the case of the thioglycollate medium) is sufficient proof that no microor-

> ganisms for which it was possible to test in this experiment are present in the media.[1]

The experimenters frequently questioned whether traces of turbidity occurred in some of the vials. In order to check these vials the questionable media were streaked on appropriate agar plates which were placed in the incubators for a specified time. No growth occurred on any of the solid media, thus indicating that the questionable turbidity was not due to the growth of microorganisms. One possible explanation for the translucent nature of the thioglycollate medium, which might be interpreted as slight turbidity, is the presence of a small amount of agar which acts to stabilize the medium. Dr. Parker inspected each of the 200 vials of media used in the experiment and verified the fact that they were all negative for growth of microorganisms.

Another question which may arise is: Did the experimenters test for all microorganisms? With the equipment available and the limited background in microbiology, the experimenters were unable to test for viruses, rickettsiae, protozoa, and some of the fastidious bacteria. The experimenters believe they were able to test for most of the common microorganisms of the air. Since some of the viruses are very resistant to drying it is possible that some may have been introduced and their presence was not detected. Though this fact does place a limitation upon the experiment, it is thought that it in no way invalidates the findings nor the value of the study.

Could it be possible that there were no microorganisms present in the air sampled in this experiment? It has been a known fact that microorganisms do exist in the air and many studies have been done to determine the number of organisms present in the air. Hatch states that ". . . one is unable to predict the concentration of atmospheric contamination in a given area. It can only be said that sufficient air movement exists to insure a positive dispersion of the particulate matter." (7) Witton says all microorganisms in the air come from ". . . soil, water, human excretions or other sources," (8) and either alone or attached to something, such as a dust particle, they are blown about by air currents. None grow in the air, but they may exist in the air in particles from solid materials, in droplets of moisture or in droplet nuclei (the minute solid residues of small droplets).

Frobisher has said that "if the atmosphere is undisturbed, all dust will settle and the air becomes sterile . . ." (3) but a challenge goes to anyone to find a place where man exists in which the atmosphere is undisturbed, and of necessity one must agree with Wells when he says ". . . air must be a vehicle of infection." (10) And so the supposition that introducing air into a vial might also result in the introduction of organisms was not erroneous thinking.

Can it be said that the environment in which this experiment was conducted was not conducive to obtaining organisms along with the air which was drawn into the syringes? There have been investigations made to illustrate that oiling floors may keep dust from flying about and thus reduce the degree of bacterial contamination of the air, or that ultraviolet rays will destroy some microorganisms, or still that the use of bactericidal vapors such as propylene glycol and triethylene glycol results in a lower count of microorganisms present; but certainly no attempt was made to set up such ideal situations. In fact, the experimenters selected a variety of the most common locations in both the home and the hospital where medications may be withdrawn from a vial and administered at any time. In both the home and the hospital the degree of cleanliness of the environment and the amount of activity at the time of the experiment varied greatly.

In conducting studies concerned with the infection of the air of scarlet fever wards, Brown and Allison came to the following conclusions:

> The high colony counts are almost certainly related to the morning activity in the wards—washing and treatment of patients, making of beds, sweeping the ward floor, cleaning the ward furniture and serving of meals, associated with a continual to and fro movement of staff and opening and shutting of doors (11).

The reader will note that in some cases it was planned to have as much activity as possible in an attempt to duplicate the busy hospital situation in which medications are prepared for administration.

Would the number of people present at the time of the experiment have any relationship to the results obtained? In an experiment conducted by Yaglou and Wilson it was shown that "when the room was occupied by nine persons there were from five to eleven times as many bacteria in the air as when there were two persons." (12)

In this experiment there were times when the experimenter was alone, but there were also instances when eight or ten people were present in the room at the time the experimenter was working. Still this variant factor made no difference in the results obtained in this experiment.

The means of dispersion of microorganisms in the air, which has just been discussed (bedmaking, sweeping, and the presence of people in a room), has been mainly by air carriage, but there is another manner by which microorganisms may be dispersed: dynamic projection such as occurs in a sneeze or cough. Since "it is known that every drop of saliva and nasal exudate, even from healthy persons . . . contains bacteria capable of causing disease" (13) it was deemed advisable by the experimenters to have within some of the experimental fields people who were talking or sneezing, or babies who were crying. There were several instances in the course of these experiments in which people were talking.

According to Jennison, ". . . The number of actual droplets obtained from a cough or from speaking for a few minutes vary from a few to a few hundred . . ." (14). "Wells (1935) has demonstrated in the air an average of over 20,000 organisms per sneeze."(15) Twenty thousand is a large number of organisms; and when it is considered that in some instances the experimenter

[1]Statement by Dr. Robert F. Parker, personal interview.

recorded that an individual sneezed, or that a baby was crying, one wonders why the experimenter did not get some of these organisms in the 1 cc. of air which she drew into the syringe.

The question was raised earlier as to whether the environment at the time of this experiment was conducive to obtaining microorganisms. It has been shown that there are more microorganisms in the air when there is movement of air (that is, bedmaking, sweeping, et cetera), when a number of people are present, and when such activities as coughing, sneezing, and talking are going on. In answer to this question it is evident that all these conditions existed in this experiment; yet not one sign of growth developed.

One possible explanation could be that in many instances particles containing the microorganisms settled so rapidly that actually there were not many at the hand-working space of the experimenter. Jennison, in making studies of the number, size, and activity of microorganisms expelled in mouth spray and caught upon agar plates or glass slides, drew the following conclusions:

> Furthermore, of the particles thus caught the greatest proportion is obtained within a few moments after their expulsion, indicating their relatively large size. Largely as a result of such observations the view has been generally held that mouth spray, as normally produced in respiratory activities, particularly coughing and talking, is fairly coarse and settles quickly (16).

Another possible explanation might be that at the time of a cough or sneeze, or in talking, the microorganisms were dispersed horizontally so rapidly that the majority of them were beyond the site of the syringe at the time the air was drawn into it.

> . . . Results show that droplets as large as 1.0 mm. can be projected a considerable distance through air provided there is sufficient height for free fall. When projected at 152 fps from the breathing height of a man, the 1.0 mm. droplet will reach the floor in an approximate distance of 15 ft. On the other hand, droplet nuclei and potential nuclei (less than 0.1 mm.) are not projected any appreciable distance by virtue of their own kinetic energy and must depend therefore upon the air movement for their transportation beyond the immediate vicinity of their source (17).

These are all plausible interpretations; however, another concept seems to offer the most reasonable explanation as to why no growth of organisms was observed in any of the 200 vials. One cubic centimeter of air, the amount injected into each vial, when compared to the total volume of air in a room, is a very small quantity. It is easily understandable that the number of organisms in 1 cc. of air, when compared to the total number of organisms in a room, is, likewise, going to be very few.

Now visualize the comparison between 1 cc. of air and 1 cu. ft. of air (a small portion of the volume of air in one room). Since 2.5 cm. equals 1 in., then 30 cm. equals 1 ft. By taking the cube one can calculate that 1 cu. ft. equals 27,000 cc. Imagine the number of cubic centimeters of air in one room; or to make the comparison more vivid, imagine the number of organisms which would have to be in a room if an experimenter were to obtain *even one* microorganism in each cubic centimeter!

As a basis for calculation it was necessary to find the number of microorganisms in 1 cu. ft. of air. The various studies presented previously in the survey of the literature were reviewed. The one conducted by Wheeler, Foley, and Jones was selected because their study was concerned with the sampling of air in various wards and rooms of a hospital and because they used two of the best pieces of equipment available today for determining the number of microorganisms in the air, the bubbler pump and the air centrifuge (18). When the bubbler pump was used the number of estimated colonies from 10 cu. ft. of air ranged from 610 to 1,400. When the air centrifuge method was used the number of estimated colonies from 10 cu. ft. of air ranged from 58 to 170.

The figure representing the largest number of colonies obtained by Wheeler, Foley, and Jones was selected as a basis for calculation. If 1,400 colonies were obtained when 10 cu. ft. of air were bubbled through the bubbler pump in a hospital ward, there would be 140 colonies per cubic ft. of air. Now the question is: How many colonies (each colony represents one organism) would be found from only 1 cc. of air? Or one may say: How many cubic centimeters of air must be sampled before *one* organism is found?

Since 1 cu. ft. equals 27,000 cc., and there were 140 colonies per cubic foot of air, there would be one organism per 192.8 cc. of air. Here, it would seem, lies the clue. An average of 193 cc. of air would have to be drawn into a syringe in order to get one organism. No such quantity of air would be injected into a vial at one time prior to withdrawing a medication. Even if this quantity of air were divided and used for repeated injections it would mean that 1 cc. of air might have to be injected into a vial 193 times before contamination of the solution in that vial would occur.

In this entire experiment involving 200 vials, only 200 cc. of air were used. Therefore, on the basis of the figures presented by Wheeler, Foley, and Jones it could have been possible for the experimenters to have obtained one organism. Apparently the one possible organism escaped the syringe and all findings were negative.

Dr. Parker did say that in spite of the fact that he believed two hundred vials were sufficient for testing, had the experimenters continued, eventually one vial of medium would have become turbid. This statement is based on the law of chance.[1]

The initial idea which prompted this study was the belief that there was a great possibility of introducing organisms into a vial with the injection of air. The reader is aware that the findings from this limited study were negative. The above interpretations have been offered as an explanation for results obtained in this study.

[1]Statement by Dr. Robert F. Parker, personal interview.

VI. Concluding Statements

Conclusions

The true value of a research project is often measured in terms of the conclusions reached at the end of the study. Certainly the conclusions should answer the question that prompted the study. In this study the group believes that the question in their minds has been satisfactorily answered. As has been stated previously, of the 200 vials of media injected with air, all were negative for the growth of microorganisms in the particular media chosen and under the specific conditions provided. It cannot be known without further research whether negative findings would continue to be obtained if different media were used and different conditions provided. Since it was not possible to test for all microorganisms, it should be concluded that no microorganisms for which it was possible to test were present. Due to the absence of growth of microorganisms in the selected media, it can be concluded further that the method of injecting air into a rubber-stoppered vial prior to the withdrawal of a solution is a reasonably safe procedure.

Since there was no evidence of growth in the 200 vials of media used in the experiment, there was no need to proceed with the second phase of the experiment in regard to the viability of microorganisms in crystalline insulin.

Applications

From every nursing study conclusions should result which can be applied to nursing problems by the researchers and the nursing profession as a whole. It is believed that this study has these broad applications. The process of administering a medication by injection is a familiar sight in hospitals and in some homes. As has been stated previously, air is injected into a vial prior to the withdrawal of the medication. This study would indicate that organisms are not introduced frequently into a solution with the air. Thus the contamination of a medication by the injection of air, prior to the withdrawal of a medication from a vial, does not present the problem thought to have existed by some professional people.

Suggestions for Further Study

Five extensions of this study have occurred to the writers. The first one is concerned with the mechanical and chemical cleansing of the stopper with a disinfectant. As has been mentioned in the discussion of the literature there are microorganisms widely distributed in the air. This wide distribution would indicate that a few microorganisms may be present on the rubber stopper of a vial of medication. Prior to the injection of air into a vial the nurse or doctor cleanses the rubber stopper with a cotton ball saturated with a disinfectant. Since disinfectants vary in their ability to destroy microorganisms and since the cotton ball does not remain on the rubber stopper for any length of time, the question arises whether microorganisms remain on the rubber stopper after cleansing with a chemical. The results of a study of this problem might prove valuable.

Let us assume that microorganisms are present on the rubber stopper after cleansing with a disinfectant. A second extension of this study would be to investigate whether some of these microorganisms would be carried into the vial of medication from the rubber stopper by way of the needle. It might be that the rubber of the stopper would be so unyielding that all the microorganisms would be rubbed off by the stopper as the needle entered the vial.

A vial usually contains enough medication for several injections. The rubber of the stopper is very resilient prior to the first insertion of the needle. With each successive insertion of the needle into the vial the rubber of the stopper loses some of this resilience. It has been noted that a hole is sometimes formed in the rubber stopper when the needle is repeatedly inserted in the same site on the rubber stopper. A third extension of this study would be to determine whether microorganisms are introduced into a rubber-stoppered vial with repeated insertions of a needle into the same vial.

In hospitals today there are certain procedures that require the injection of definite quantities of air into sterile cavities. A few of these procedures are the pneumoencephalogram, the pneumoperitoneum, and the pneumothorax. Most of these procedures require a greater quantity of air than has been used in this experiment. Professional people working with these procedures have sometimes questioned the possibility of introducing microorganisms with the air into these sterile cavities. As a fourth extension of the present study the group suggests the evaluation of these procedures.

It is believed that even though the results of this study were conclusive to the experimenters, there may be dissatisfied readers who believe that the study did not provide an adequate sampling for drawing definite conclusions. Because of this possibility the group suggests that a fifth extension be the same procedure as used in this study, but followed more extensively. Perhaps if further sampling had been made, a positive finding would have been obtained due to the law of chance. In this experiment the vials were entered two hundred times without resulting contamination which indicates, at a minimum, that the odds are at least two hundred to one that no contamination results from the introduction of air into vials. Thus further sampling would determine the probability of contamination.

When these further studies have been completed, many of the questions regarding the safety of withdrawing medication from a rubber-stoppered vial will be answered more satisfactorily.

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Medical Statistics

Americans love numbers. . . . We cherish figures regardless, practically any figures. We are as taken with guesses of the number of Wisconsin cheeses it would take to reach from here to the moon as with estimates of our national income. In no area do we accept figures more enthusiastically or uncritically than in medicine and health. Eagerly, we follow mortality rates as an index to the nation's health, we fix our fears by the statistical alarums of health agency fund-raisers, we peer over the researcher's shoulder as he tots up the score on a new drug to see whether it should be added to the physician's armamentarium.

Unfortunately, there are few fields with more pitfalls for the statistically unwary. We have a formidable apparatus for gathering medical statistics. Yet we have no reliable information on, for example, the incidence and burden of many kinds of chronic illness; most of the figures commonly quoted are little more than uninformed guesses. . . .

Yet there is no field in which dependable statistical information is more urgently needed. Accurate data are central to every phase of medicine and public health, from pinpointing the causes of disease to the construction of new hospitals and the organization of medical care. . . .

An inevitable product of the lack of reliable current data has been the growth of a sizable body of counterfeit medical statistics—figures worked out for various purposes by organizations or individuals without the resources to gather information directly and without the sense of caution required for the numbers game. An example is the calculation of a well-known urologist that there are eight million cases of cancer of the prostate gland in the United States — which would be enough to provide 1.1 carcinomatous prostate glands for every male in the susceptible age group!

Bogus statistics remain in circulation because we have a low index of suspicion for improbable figures — and because we have none better. A few states have recently made cancer a notifiable disease. The rest should do the same, and the notifiable list should be extended to take in other important chronic ailments as well. This would provide a long overdue start toward the construction of an accurate index to the nation's health.—ENGEL, LEONARD, "Caution: Medical Statistics at Work." *Harper's* 206:77-82, January 1953, page 77.

Changes in Empathy in Student Nurses During the Psychiatric Affiliation

By Harriet M. Kandler and Robert W. Hyde

TESTS for empathy go back in fact, if not in name, at least as far as the word-association work of Kent and Rosanoff (1). It was found that the more highly individualized the responses were, the narrower capacity for empathy there was likely to be. From the subsequent history of this procedure, it might still be considered as fairly efficient in a clinical setting for picking up lack of empathizing capacity but much less effective for spotting its presence. In principle, the aim of such a test is to gauge the degree of effective conformity to a group norm. At the time of Kent and Rosanoff's work, the word-association test may well have been the best available instrument for such a purpose as relevant group norms did not otherwise exist, and the word-association test was a procedure in which the investigators could, without impossible labor, establish group norms for their own procedure.

The very special development of communication media since this time, however, and the strong pressures to measure their relative effectiveness have provided information that can, with a little ingenuity, be turned to empathic measures of considerable objectivity and penetration (2, 3, 4, 5, 6); necessarily, however, these measures are aimed at capacities to empathize with normal and relatively unspecialized groups. In the present study, the concern is for capacity to empathize with abnormal individuals for whom the normative data basic to an objective appraisal of empathy are lacking and hardly practicable to secure. For this purpose, one may for the time being proceed along different and more subjective lines, using a self-rating scale for an indirect approach to capacity for empathizing with the atypical individuals who are psychiatric patients.

In a psychiatric hospital where the education of personnel is an important function, there is a constant need to investigate the educational goals and methods in use. In the education of student nurses during their psychiatric affiliation, the problem of their relationship with patients and their understanding of these patients comes into sharp focus with the observation that there are marked differences as to which patients they can relate to successfully. This observation suggests that the ability to empathize (identify) with patients is a major factor in their treatment, just as the failure to empathize makes treatment more difficult. For this reason it becomes important to determine how individuals differ in capacity for empathy, whether there is an over-all variation in this ability, and what is the selective nature of this empathy. Empathy is here defined as the capacity to put one's self in the other's place, both intellectually and emotionally, and to see things from the other person's point of view.

The present study deals with two problems: first, the development of a test which would make it possible to ascertain in the present setting how individuals vary in empathy, and to develop baselines from which to determine change; second, to determine whether or not the student's ability to empathize with patients changes during the educational process of the affiliation. Satisfactory tests of this nature have great usefulness in the selection of personnel for any field demanding close interpersonal relationships.

Rationale of Test

The rationale upon which this test is based is that a person gains empathy for certain traits by having experienced them in others and by incorporating them as part of himself. It is believed that the traits with which the student empathizes, in both degree and kind, play a large part in her effectiveness as a psychiatric nurse. This is because it is necessary for her to understand patients with a wide variety of characteristics. It is this understanding that we are endeavoring to test. It is considered that this ability to empathize with patients rests both on the student's understanding of others and upon what socially unacceptable personality traits she can recognize that she herself possesses or has possessed to some degree. Changes in empathy that occur during the psychiatric affiliation are thought to be related to the student's insight into changes in her basic attitudes toward patients and herself.

Test Procedure

A list of 27 traits was compiled which student nurses had mentioned in group discussions as reasons for disliking patients. Sixteen of these traits

were aggressive and eleven passive. These represent common negative traits that are objectionable to the students and are considered socially objectionable. There is some overlapping of traits, but this is considered to be advantageous in that two quite similar qualities may have different values for different individuals, e.g., "loud" and "noisy."

The test was given to four consecutive groups of students, 50 in all, who affiliated at the Boston Psychopathic Hospital for a 12-week period during 1951. These students ranged in age from 19 years and 1 month to 22 years and 7 months, with an average age of 20 years and 2 months. They came from six different schools of nursing in Massachusetts—four located in metropolitan Boston, one in a rural hospital in the western part of the state, and one in a small community hospital within 20 miles of Boston. The students had been in nursing school between 18 and 30 months before entering upon their psychiatric affiliation. They had no previous acquaintance with psychiatry other than fifteen hours of general psychology. The majority of the students had never before visited a mental hospital.

The intelligence level of the group, tested by an Army Alpha revision, was similar to that of other affiliating groups, averaging about 132.

A pilot study indicated that when the empathy test was given three times—at the end of the first, sixth, and eleventh weeks—a rise in positive empathy was found on the second test. To follow the course of this upward trend, the empathy test was given for the main study at five intervals during the twelve-week affiliation period, following the first, third, sixth, ninth, and eleventh weeks.

There were between 10 and 15 students in each group. The examiner first made sure in group discussion that the students understood the word "empathy." They were then given standardized directions as follows:

> Here is a list of words which usually carry with them rather undesirable connotations. In general, it is supposed that we do not like people with these characteristics. Here we are in a professional role in which we are supposed to be particularly understanding of people with abnormal traits. But we are still human, and there may be people it is hard for us to empathize with. We should know about our capacity to like people who have the traits on this list. The question is, can you like most people who have these traits? If you can, put a plus sign after the number; if not, a minus sign, and if you are not sure, a plus-minus.

The content of the list is as follows:

1. Sneaky
2. Stupid
3. Irritable
4. Overbearing
5. Uncooperative
6. Whiny
7. Withdrawn
8. Unpredictable
9. Sarcastic
10. Demanding
11. "Snotty"
12. Sad
13. Lazy
14. Reserved
15. Servile
16. Buddy-buddy
17. Overambitious
18. Ornamental
19. Noisy
20. Pseudo-cultured
21. Immature
22. Cruel
23. Vulgar
24. Loud
25. Shy
26. Oversensitive
27. Bragging

An important limitation in a test of this type is that it may test what the person feels he is expected to say rather than true empathy. That is, there are values implied in the acceptance or rejection of certain traits. A person being tested may wish to make certain impressions and consequently may subscribe not to what he really feels, or to traits he feels he can empathize with, but to values he feels are expected of him. This difficulty is accentuated in the present instance, for the group being studied is a professional group dedicated to the service of the sick. By reason of this professional role, the student may feel that she is expected to empathize with all traits that patients have; or she may feel that her professional role is expected to be one of affective neutrality and detachment in which she is required simply to "nurse" the sick without empathy.

On the other hand, the prevailing social attitudes toward plus and minus responses are believed to be fairly balanced so that a feeling of social disapproval would be unlikely to swing a response score greatly one way or the other. An honest attitude is also encouraged by the frame of reference in which the test is presented as a method to determine the types of patients with which each nurse can best empathize. Throughout the psychiatric affiliation, students are encouraged to explore their true feelings and to acknowledge them. All of the students have at least one week's introduction to the hospital's attitude of permissiveness before the administration of the first test.

To assess the reliability of the instrument, the test was administered on two successive days to the same group of test subjects. No significant differences were found between responses given by each individual to the two tests. Responses to each of the 27 items in the test and retest were examined for significant differences and none were found. The absence of any statistically significant difference supports the reliability of the instrument for the present purpose.

Because no fully satisfactory criteria of good psychiatric nursing skills are available, it is difficult to estimate the validity of this test. One which might be considered is that of patients' feelings about personnel—for instance, which nurses the majority of patients prefer to have care for them. Except for studying comparative recovery rates, this measure could well be as valid an appraisal as is readily available of the personality qualities necessary for good patient care.

There is a feeling that the outgoing, popular nurse who is successful in her relationships with her classmates may have qualities of maturity and the capacity to develop good interpersonal relationships when she is dealing with and caring for patients.

The scores for capacity to empathize show a trend toward correlation with the intelligence test scores received by the students on the Army Alpha and Beta tests (.30 with Alpha and .38 with Beta). There is no reason to suppose a relationship in these areas which is either pronounced or linear. Other factors being equal, the more perceptive

individuals would tend to score higher in empathizing capacity.

Findings

An over-all appraisal of the direction and amount of change in empathy between the test given at the end of the first week of affiliation and the test given at the end of the eleventh week yielded the following results:

All of the 50 students included in the study showed a change in some direction; 41 students increased in positive affect and 9 showed a decrease.

Score values were assigned to changes in empathy from test one to test five. Changes from negative to positive were scaled on a 5-point scale from plus 1 to minus 1. The higher score indicates the greater empathizing capacity.

There was a comparatively wide range of change. The greatest increase was plus 13—that is, a full gradation of change from negative to positive in 13 of the 27 choices, or the equivalent in a greater number of half changes as from neutral to positive, minus to neutral. The greatest decrease was that of minus 8. The mean change was plus 2.

In general, the change shown in the empathy tests given at the five intervals followed one of three patterns.

Group 1.—An increase in positive responses was manifested on Test 2 (third week), with the positive responses rising still further on Test 3 (sixth week); this test represented the empathic peak, as Test 4 (ninth week) showed a sharp decline in the positive responses. On Test 5 (eleventh week), the positive responses rose again, to a level higher than that on the first test but not as high as the level reached on Test 3. This group comprised 34 students, or 68 percent of the total number.

Group 2.—This group, comprising 7 students, or 14 percent of the total number, resembled the first group in that there was an increase in positive responses on the second and third tests, and a decline on the fourth test. However, the rise was slower than in the first group, and the final upswing in positive responses, manifested on the fifth test, reached but did not exceed the original level.

Group 3.—In the third group (9 students, or 18 percent of the total number) there is a similar number of positive traits as in the first two groups; the rise reaches a peak at a later time, however—on Test 4 at the end of the ninth week—and then declines as it did in the first two groups, but does not again return, as they did, to a high number of positive items.

It might be assumed that affiliate nurses would show an improvement in empathy as a result of the educational process in which they are given understanding of the reasons for patients' behavior, and where they can see symptoms as manifestations of illness rather than as willful misconduct. Both the classroom experience and the student's experience on the ward might be expected to bring about improved empathy scores in all cases. However, 9 students (group 3) failed to show such increase. It is important to see if any explanation can be found to account for the failure of rise in empathy in these students. Any failure to make gains in other areas would tend to support the validity of the test.

Of the 9 students who failed to show a gain in empathy, 3 failed to be chosen as liked by any of the patients. Seven of the 9 students in this group fell in the lowest quartile of personnel liked by patients. This is in contrast to the other groups of students (those who showed a gain in empathy) as only 5 of the 41 students in groups 1 and 2 were in the lowest quartile. These data suggest that students who fail to express an increase in empathy are not considered likable by the patients, while students who showed an increase tended to be liked by patients.

Choice by associates as likable followed almost the same pattern. Of the 9 students who did not show an increase in positive empathy, 2 were liked by none of their associates; seven of this group fell in the lowest quartile, one in the second quartile, and one in the third quartile. This is in contrast to the remaining 41 students who did show an increase in empathy; only 5 of these students were in the lowest quartile. It would appear that the nurses who are best liked by both patients and by their associates are those who showed an increase in their expression of ability to empathize. The rank order correlation is significant at the 1 percent level as between popularity with associates and increase in empathy.

Discussion

Three possible explanations of the changes in empathy scores are distinguished here. First, the student becomes aware of how deeply she is involved with the patients (Test 3) and shies away (Test 4), then is gradually able to overcome this (Test 5) before the twelve weeks are over. A second possibility is that the student for a time feels that she can like patients with certain objectionable traits. At first this feeling increases, but the passing weeks lead to a decrease in empathy; with further time and increased acquaintance these traits again become more tolerable to her. A third possibility is that the student, early in the affiliation, becomes aware of the fact that she, like the patient, may have some of these "objectionable" traits. The sudden drop and gradual rise would be indicative of her growing ability to accept these traits in herself. The student who is unable to accept such facts in herself may be the one whose empathy rating does not rise during the affiliation.

Instruments for studying the changes that occur in the student nurse during her psychiatric experience have not been adequately formulated. Because of the increased emphasis in the nursing school curriculum on psychiatric understanding, it is becoming increasingly important that we develop instruments for measuring these changes. Much of psychiatric nursing involves the development of mature attitudes, depths of understanding of self and of others, rather than any specific body of information. Quite different instruments

are necessary to evaluate changes of attitudes and increases in understanding from those needed in evaluating the degree of knowledge of a body of factual information.

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What Is the Historical Method of Research?

By Alice W. Spieseke

THE goal of professional historical research is identical with that of other scholarly pursuits —namely, to ascertain the truth. But the area of truth that primarily concerns students of history is truth about the past; about man and his physical environment; about what man said and did, including his inventions and artifacts, his institutions of government, family, religion, philanthropy, and war; and about what he felt and thought. The historian while working on some small segment of human experience does not isolate it from its surroundings; he does not examine it and write about it as though it were a separate entity unrelated to the world of which it was a part, or to the present one. This latter connection the historian must not distort. His work is only completed when he has presented his evidence and generalizations in precise colorful language that will, as nearly as possible, evoke images, create moods, arouse emotions, and convey ideas to his readers identical with those that he has formed as he labored with his materials.

Since historians are individuals no two of them will come out with identical conclusions and generalizations even though they started with the same purpose and dealt with identical evidence. In processing the data—that is, in determining the most reliable or the most important—each would be conditioned by his own set of values, his training, his predilections, his imagination, and his sensitivity to words. This difference would of course, be more marked if the historians worked at different times, for they would be influenced, consciously or unconsciously, by the intellectual climate of their age. Dilemmas, predicaments, justification for, or explanations of, innovation drive men to re-examine the past. The experienced, mature historian, while recognizing and making allowance for the degree of personal or social subjectivity that influences his work, does not lessen his effort to approximate the truth about that aspect of the past he is studying. To reach that goal he employs the historical method of study.

To reconstruct the past there is relatively little observable data. True, there are physical remains, such as cave drawings, monuments, buildings, clothes, coins, utensils and implements. Some of these have been preserved by chance and some by deliberate design, like monuments and the objects in museums. But they are just fragments of the whole and unless related to other things can give erroneous impressions. The greatest portion of our knowledge about the past comes to us indirectly, largely through words, and these written records are the raw materials that the historian collects, examines, analyzes, and on which his conclusions and generalizations rest.

The quantity and quality of the records, or the sources as the historian calls them, are of the greatest concern to him. Ingenuity and patience are needed to locate pertinent documents; in fact, some of the qualities of an amateur detective are often called into play. An unfound letter, amendment, charter, or court decision may undermine, if not destroy, the validity of his conclusions, and that disaster he wishes to avoid. Consequently, he wants as broad and deep a base as possible, and is not satisfied until he has made an intensive search, tracking down every possible clue. In the 19th century American historians had to travel widely as they collected their data, but the concentration of materials in libraries, the issuing of bibliographies and catalogues, the photostating process, and the microfilm have cut down both the labor

and the expense. Yet the problem remains, for the historian can never be absolutely certain that the best evidence has been found, or that what he selects to use is truly representative. Consequently there is a tentative quality about the work of all historians, which is one reason why history has to be rewritten.

In dealing with sources, the historian is most deeply involved with the ones he classifies as primary. These are either official documents or the accounts of eye or ear witnesses of an event. Much of the material in a letter or a diary, for example, may not be primary but secondary, for the writer is only passing on what he has learned indirectly or through somebody else. The historian makes use of many secondary accounts, but if he depends on them extensively and without critical examination the quality of his own work will suffer.

In examining his primary sources for their reliability the historian needs to be skeptical and to raise many questions. When was this account written, right after the event or years later? Was the writer a trained observer? Is it a complete account or only a partial one? If the latter, why? Was the author consciously suppressing some of the facts? If so, why? To protect a friend? Discredit an enemy? Promote a cause? Was the author in good health when he wrote? What was the purpose in keeping the diary?

In order to determine the accuracy of the writer certain tests have to be made. Is there any corroborating evidence? Does another independent primary source support the statement? Are there any in disagreement? Depending on the evidence, and not on what he wishes to find true, the historian determines the reliability of each important primary source. This is a time-consuming process but one that has to be done if the historian seeks to render an accurate account and one that will stand the test of examination by later historians.

Determining the reliability of thoughts and feelings, beliefs and motives is one of the most difficult tasks a historian undertakes. This stems from the fact that most human beings write down only a small fraction of their thoughts or convictions. Sometimes they are not consciously aware of them, and often they are not entirely honest with themselves. Besides they do not want to leave a written record which may be misinterpreted. What is thought at the age of thirty may be quite different from what is thought at the age of fifty, yet the statement at the age of thirty may be perpetuated because it explains certain actions or is stated in colorful or arresting words. How often a casual phrase becomes a description of a person's entire political or social philosophy, largely because of the understandable human penchant for simplification.

After the reliability of the sources, both primary and secondary, have been tested, the data classified, the inferences made, and the generalizations drawn, the historian has to decide what to include and what to emphasize in his account. His exposition or narrative must tell not only what happened, but why it happened and how it happened. By establishing relationships and through making interpretations he must show that the subject is part of a development or process. Continuity he stresses, but causation he does not oversimplify.

What guides him in making his synthesis, in putting together the pieces? If primarily he wants the evidence to speak for itself he reflects on it, views it from various angles, and lives with it a long time before a pattern or organization takes shape. If he started his investigation to answer a question, or if he intends it to teach a lesson, support a cause or a doctrine, he selects that which is relevant and arranges it in order to promote that end. In such cases he often tells his readers that he is trying to relate his findings to a system of ideas, or using them to correct an imbalance, or bringing out into the strong light of day a neglected aspect of a situation. In any case his personal biases, opinions, admirations and prejudices are revealed by what he omits as well as by what he includes. Emphasis is accomplished by the way space is apportioned, by the words he uses, or by the order in which he treats different topics. Even when he is seeking to portray the past as it actually was and as it remains a part of the stream of history, the historian is aware that his personal feelings and purposes enter into the synthesis, though he tries to keep them at a minimum.

In the final phase of his work the historian needs to be able to express his ideas at least clearly, and at best beautifully. Confused dull writing bears no relation to depth of insight or thought, though that conclusion has often been drawn and unfortunately been accepted. Writing skills are the result of a compelling desire to make himself understood and to give the reader pleasure as well as knowledge.

Writing professional history requires a minimum of four skills all of which can be understood and acquired through practice. Locating and collecting evidence, analyzing it for reliability, organizing and arranging it into a pattern, and expressing it in meaningful and effective language are the skills involved. The acquisition of them is rewarding for it not only insures writing that will stand up under scrutiny and the passage of time, but will give the possessor the standards whereby he can discriminate between sound and superficial historical work. The power to evaluate evidence and to do sustained critical thinking will be strengthened, and the idea of historical development will be deepened. Besides, a realization will gradually form that many present, baffling human problems or predicaments have extensive root systems, and that time is required if fundamental, lasting modifications are to be made by rational, democratic means.

BRIEFS

Edited by Dorothy Wilson

A Blueprint for Personnel Policies

By Josephine C. Brown, Anna E. Johnson, Josephine T. Krok, Susan Livingstone Dunn, Ruth Glenn Rochelle, and Clarice M. Russell

The study described here was submitted in partial fulfillment of the requirements for Education 292S, Teachers College, Columbia University, August 10, 1951.

Until fairly recently, professional nurses have not focused their attention on the formulation of personnel policies which affect them. This function has usually been assumed by the administrative group in the hospital. It has been demonstrated that people function more effectively where there are wholesome interpersonal relationships and that sound personnel policies foster such relationships to the degree that personnel have an opportunity to participate in the formulation of policies which affect them.

A group of nurses who have been faced with the problems of personnel relationships in hospitals decided to investigate the content and manner of formulation, publication, and implementation of personnel policies for professional nurses in three hospitals in the Metropolitan New York area. It was hoped that their technique of investigation might serve as a tool to be used by directors of nursing service in evaluating current personnel policies in their hospitals, and that the findings would provide a basis for suggestions for the orientation and guidance of professional nurses. The time limit within which the study was done and the fact that only three hospitals were investigated were recognized as limitations.

For purposes of the study, the definition of the professional nurse was aimed at differentiating her from other members of the hospital nursing service staff administratively, rather than attempting to associate her with her professional functions.

In order to study the problem it was necessary to find out what areas of policy are included, as compared with those which should be included, in the personnel policies within the framework of which professional nurses in these hospitals are currently operating, how, and by whom the policies are formulated, by what media of communication they are made known to the staff, and who is responsible for implementing them. A comprehensive questionnaire was constructed which purported to ascertain some of this information. Multiple choice questions were used and the topics categorized in four main sections: contents, formulation, publication, and implementation of personnel policies for professional nurses. In accordance with the recommendations in professional manuals dealing with the subject, the topics for the first section were categorized under four headings: employment procedures, conditions of employment, security benefits, and miscellaneous.

The directors of nursing service in the three hospitals under study gave generously of their time in completing the questionnaire and agreed to ask ten nurses from the staff to participate in an investigation to determine the extent to which professional nurses are aware of the policies which affect them. The questionnaire constructed for this purpose was based on the policies in operation in each hospital. Essay questions were used in the hope of securing more reliable data than might have been obtained from objective questions.

Before drawing conclusions regarding the data obtained from the questionnaires, the written personnel policies which were available in two of the hospitals were carefully reviewed. The written policies for personnel in the third hospital were in process of revision and were not available for study.

Further study must be pursued before broad generalizations may be made. However, the results of this study have indicated many areas of need for the clearer definition and interpretation of personnel policies for nurses.

In the hospitals under study there were many ambiguities between the written policies and the responses to the questionnaire completed by the directors and the professional nurses, which would seem to indicate differences in interpretation of what is written and a conflict between that which is written and that which is current practice. In two of the hospitals the fact that there were written policies did not seem to affect significantly the extent to which the professional nurses in those hospitals understood them. The written policies appeared to be inadequate in scope and difficult of interpretation. They tended to relate primarily to the administrative aspects rather than to the personal aspects of employment. There is an apparent lag between the need for policy revision and the actual revision. In view of the wrong or ambiguous answers to questions relating to matters of vital interest to nurses, such as salary, opportunities for promotion, vacations, and provisions for medical care, it seems unlikely that professional nurses participate to any great extent in the formulation of policies, notwithstanding the information obtained

from the questionnaire completed by the directors of nursing service.

It is hoped that directors who use "A Blueprint for Personnel Policies" to formulate personnel policies in their own hospitals will accept the recommendations for democratic participation by the professional as well as the auxiliary staff.

A Study of the Young Child's Contacts With Staff Members in a Selected Pediatric Hospital

By Carol G. Jacob

This study is available on microfilm only, from the Department of Photographic Reproductions, the University of Chicago Library, Chicago 37, Ill.

Purpose: To secure information which may serve as a basis for setting an environment which will further, rather than retard, healthy personality development of the child during the period when he requires hospitalization —specifically, to determine experiences a young child faces during portions of his hospital stay with reference to (1) the number of contacts with staff members, (2) the nature of these contacts, (3) the difference in the nature of contacts with different types of staff members, and (4) the factors influencing the differences in number and nature of the contacts of different children.

Assumptions: (1) That children under three years of age are very dependent and intensely attached to their mothers; (2) that they need a good consistent interpersonal relationship with a mother or her substitute in order to protect them from their own impulses, to give them security in an unknown reality; (3) that hospital experience can be psychologically traumatic, that measures can be taken to prevent this trauma, and that one of the best measures is a good, consistent, interpersonal relationship with a mother-surrogate while the child is in the hospital.

The study was done on the two wards of a private teaching and research hospital. The direct observation method was used entirely. Twelve children were observed for periods of 10 hours each, totalling 120 hours of observations. All observations were made during the daytime. The children were selected at random from those who were under 42 months of age, conscious, and had been in the hospital less than 14 days.

The study revealed a consistently high number of contacts for all children observed. Children met an average of 14.6 different individuals during 10 hours, most of whom they saw less than five times each. In the 120 hours of observations, the 12 children had a total of 439 contacts, or an average of 36.6 contacts per child in 10 hours, or 3.7 contacts per child per hour. The range was from 10 to 78 contacts for a child in a 10-hour period. The children were cared for by all, or nearly all, of the nurses and attendants who were on duty. These conditions made it impossible for the children to have consistent relationships with one adult.

Nearly all of the children were tense, unhappy, and in need of some care and guidance most of the time. Of all the contacts these children had, the most prevalent were fleeting contacts (those which lasted less than a minute, and were generally meaningless in terms of the child's needs at the moment), and those concerned with routine physical, medical, and nursing care. Only 10 percent of all contacts were in answer to the children's calls and cries. Only 1.1 percent of all contacts were in anticipation of the children's needs.

There were 253 contacts during which some need or tension state was present in the children. Of these contacts the tension state was relieved, or the need met, in only 14 instances, while the tension state remained in 239 instances, as determined by the child's behavior following the contacts. Some of the adults contacted seemingly recognized the children's needs or cause of tension, but did not know how to handle the situation. The majority of the staff, however, neither recognized nor relieved the children's tension states.

There was found to be no significant difference in the recognition of children's needs and the ability to reduce their tension among the various groups of personnel. All groups tended to recognize the children's needs slightly more often than they were able to reduce their tensions. Nurses both recognized the needs and reduced tension slightly more often than did the doctors, while the attendants did so least often.

Several factors, such as age, day of hospitalization, degree of the child's activity, isolation precautions, location on the ward, number and frequency of medications, the child's personality, and the presence of the observer influenced the number and nature of the contacts of a few children to some extent. Nevertheless, the study revealed that, in terms of the child's need for one good, consistent, interpersonal relationship with a mother-surrogate, these children's needs were not met. The number of their contacts was consistently high; they consistently met too many different individuals; and the nature of their contacts was consistently poor in terms of their psychological needs.

Some of the factors which might have been responsible for these findings were suggested. These include: the functional method of assignment contributed to the large number of contacts with different individuals; sensitivity to the emotional needs of children was not considered to be an essential part of nursing care; the failure to meet the children's needs may have been due to a lack of understanding of the basic needs of children, a lack of understanding of the children's language and behavior, a lack of knowledge of how to handle situations, resulting in feelings of inadequacy and helplessness, with consequent avoidance of the issue; overwork on the part of the staff; failure of the staff to have their own needs met, with a resulting sense of frustration and a lack of energy with which to meet the children's needs; faulty methods of assignments; and personal emotional problems blocking the capacity of some of the staff members to perceive and meet the emotional needs of their child patients. Further research was suggested in some of these areas.

Children under three years of age should have their mothers with them in a rooming-in ar-

rangement during a hospital stay. This should avoid much of the trauma caused by separation, and help protect the child during painful experiences. Since this is not yet feasible in most institutions, the following recommendations were offered.

1. The case method of assignment should be instituted, and each nurse should be assigned the same children for the entire hospital stay of these children.

2. Nurses and attendants should be permitted to express their dislike for certain children so that these children may be reassigned to other nurses or attendants who can give them the emotional warmth they need.

3. Patients should be assigned to a team consisting of one nurse and several attendants, and the attendants should be responsible to that nurse, who in turn should be responsible to the head nurse.

4. A permissive atmosphere should be maintained, so that resentments on the part of the staff toward each other or toward the children may be expressed and brought into the open where they can do no harm to the children.

5. A sound staff education program should be carried on, including all nurses, attendants, volunteers, and those doctors who wish to participate. Instruction should be given in the dynamics of personality development, the psychopathology of illness and hospitalization, the fundamental needs of children, and ways of handling the most common problems of children in general, and hospitalized children in particular. This should be taught in such a manner that some measure of increased insight into their own problems can be achieved.

6. Weekly staff conferences should be conducted. Included in such conferences should be the nurses, attendants, the intern, the resident, the dietitian, the occupational therapist, the social worker, and preferably, a child psychiatrist and/or clinical psychologist. The primary purpose of these conferences should be to help the staff to see the child as a feeling person who has an illness, to understand how this illness is affecting him and how he is responding to his illness and hospitalization, and what can be done to help him make a satisfactory adjustment. In this way, greater consistency of care and of approach can be achieved for all children. A permissive atmosphere should predominate at these conferences, so that all problems may be expressed, discussed, and, if possible, solved.

7. A planned, supervised play program should be instituted and directed by a person especially trained in the field of child psychology and guidance and/or nursery school education. This should be done so that children will be constructively occupied with normal childhood activities, that the growth-retarding effect of illness may be minimized, that the children's needs for play and creative self-expression may be met, and that their ability to socialize may be furthered. This play program should be supervised at all times during the hours between 9:00 A.M. and 7:00 P.M., so that the children may be protected from their own impulses to fight, as well as from the aggressiveness of other children, and so that they may receive help when they need it either in their play or work, or in their ability to get along with other children. Volunteers should be assigned to children by the person in charge of the play program, and whenever possible they should play with the same children each day, so that they may learn to know the child and his needs and responses. They should be fully informed about the personality characteristics of each child to whom they are assigned. Furthermore, they should be helped to handle the problems that arise in the best way for the welfare of the child.

8. Each child should be informed as to who will take care of him after "his" nurse or attendant goes off duty. He should be given this information by the nurse who has taken care of him, and she should introduce the new nurse to him if he does not know her. Each child should be accompanied by the person who cares for him, and whom he knows best and trusts, whenever he has to undergo painful treatment, go to another department for examination or tests, or when he has to meet strange people.

9. Provision should be made for the recording and reporting of all behavior, as well as of the physical signs of illness. Children's behavior should be reported to the nurses and attendants taking over their care by those who have previously given them care. In this way information regarding the child's behavior and needs can be passed on to the evening and night staff, and again to the day staff. There should be a definite place in the charts where significant behavior may be recorded so that it may be available to all who deal with the children. In addition, detailed information should be obtained from the mother regarding her child's behavior and habits upon his admission to the hospital, and the mother should be given any significant information regarding her child's behavior upon his discharge from the hospital.

10. Further studies should be done to determine the adequacy of the program outlined above. These studies should be done periodically so that remaining shortcomings may be improved.

11. Personnel whose personality problems interfere with their work with children, and who prove inadequate after a reasonable trial period in which they receive all the help and instruction necessary, should not remain in the pediatric department.

What Is Research?

Research is a high-hat word that scares a lot of people. It needn't. It is rather simple. Essentially, it is nothing but a state of mind—a friendly, welcoming attitude toward change. Going out to look for change, instead of waiting for it to come. Research, for practical men, is an effort to do things better and not to be caught asleep at the switch. The research state of mind can apply to anything. Personal affairs or any kind of business, big or little. It is the problem-solving mind as contrasted with the let-well-enough-alone mind. It is the composer mind, instead of the fiddler mind; it is the "tomorrow" mind, instead of the "yesterday" mind.—KETTERING, C. F. More music, please, composers! *Sat. Eve. Post* 211:32, Sept. 10, 1938.

RESEARCH REPORTER

Edited by Marie Farrell

Experimentation in Teaching Cancer Nursing

How can we prepare nurses to give competent care to the patient with cancer and to function more effectively in the cancer control program?

To answer this question, pilot studies in the teaching of the broad concepts of cancer nursing are now in progress in four universities offering basic collegiate nursing programs. The projects are supported by the National Cancer Institute of the Public Heath Service. The participating schools of nursing are Boston University, Washington University at St. Louis, the University of California at Los Angeles, and the Department of Nursing at Skidmore College. It is anticipated that a fifth collegiate school of nursing will be added to the project. The studies will cover a 5-year period.

Some of the more specific questions the study will seek to answer are these:

What are the weaknesses in the teaching of cancer in our present nursing curriculum?

How can the curriculum be reconstructed to utilize more fully the local, state, and national resources for the detection and control of cancer?

What facilities and resources are now available for student experience in cancer nursing?

What problems of inadequacy in preparation of faculty and staff to conduct good cancer nursing education programs exist in our schools? Will these be resolved through project participation and in-service education?

What problems must be met concerning additional time expenditure required of faculty and students in adding this extra cancer content to the courses and also the related dispersal of facilities which must be utilized in the program?

How can cancer nursing be used as one of the broad areas for teaching basic nursing principles and practices with emphasis on patient and family reactions, needs, and resources?

Will an expansion of the patient-centered problem approach increase the cost of operating the basic nursing curriculum?

How can provision be made for this broad experience in cancer without jeopardizing the over-all curriculum?

What desirable "by-products" for improved graduate nurse programs will result from these pilot studies?

Each of the pilot studies is using the monograph, *Cancer Nursing in the Basic Professional Nursing Curriculum,* but each one may approach the study differently because of personnel and facilities. All are concerned with presenting a broad approach to cancer nursing. All are concerned with the development of problem-solving methods of teaching and learning.

From time to time during the progress of the studies, the project staffs from the participating institutions will come together to discuss the findings, to share experiences, and to consider the similarities and differences in methodology which are desirable within the several units of the over-all project.

Five results are anticipated: (1) Each participating unit is using a realistic approach adapted to its unique situation. Discovery of factors which expedite or hinder progress should be useful later to other institutions inaugurating the broad approach to cancer teaching in the basic curriculum. (2) Methods of teaching nursing should evolve which will be applicable for effective and economical learning to other areas of nursing. (3) Criteria should evolve which will enable nurses to set for themselves high standards for quality nursing care in cancer, in particular, and in nursing in general. (4) Criteria should also evolve for appraising the quality of teaching in nursing. (5) Nurses should emerge equipped with a well-rounded background in cancer nursing, and they can then serve effectively in the control of cancer.

Research Needed

What researches in nursing are in progress or contemplated? Suggestions that have come in from our readers have indicated a need for widening the areas of nursing knowledge through "rigidly controlled investigation of an experimental nature," as well as the need for improving services to people through applied or action research.

One area in which need is felt is the care of children. A staff nurse asks for a study of the treatment of tuberculosis in children and also in mentally ill patients. Will chemotherapy alone bring desired results? What relationship, if any, exists between the biologic, physical, and medical therapeutics and the attitudes, personal security, and interpersonal relations ability of the patients? Does the pathology respond favorably to nursing care based primarily on the plan for medical therapy? What, if any, observable differences are there if social and emotional needs are considered in nursing care? The answers to these questions have socio-economic implications as well as implications for establishing criteria of quality nursing for these patients.

What is the effect on the hospitalized child of unrestricted versus restricted visiting hours? another reader asks. What can be learned from histories of mentally ill patients which will help in meeting the emotional needs of children, sick and well, and aid the nurse in helping parents to build a healthy environment for the child?

Play is an essential need of childhood related to physical,

emotional, and mental growth. What responsibility does the nurse have for determining the play needs of the child and finding ways to meet them? What effect does this have on the adjustment or recovery of the sick child? Until we know what significant differences there are in the results of different kinds of care of sick children, we cannot know what is good or poor nursing.

A social science instructor would like to see a study aimed at improved quality of head nursing and supervision. Why should either the head nurse or the supervisor lose the sensitivity and awareness of the human side of nursing which teachers have attempted to promote in nursing students? Is there something in the hospital environment which tends to interfere with fostering desirable human relations? Is it because certain personality types tend to select this branch of nursing?

Another *Nursing Research* subscriber is interested in developing a "social psychology" for students in a three-year basic program. She finds sociology and psychology so interrelated that separation is hardly feasible. This is an area in which collaboration with others working in the same field or desiring to do so might well be desirable. This is also an area in which social scientists, psychologists and nurses might well engage in multidisciplinary research.

Effects of the Use of a Non-Nurse Floor Manager on the Provision of Services to Patients in One Hospital

Nursing service directors and hospital administrators are experimenting in a variety of ways to relieve nurses of non-nurse functions. One study is in progress to evaluate the effect of separating nursing management from hospital service management in the head nurse unit.

At Memorial Center for Cancer and Allied Diseases, an organization of functions at the head nurse level centralized the management of hospital administrative service in a non-nurse floor manager responsible to hospital administration, and the administration of nursing care in a head nurse responsible to the department of nursing. In one unit the nursing staff consists of a head nurse, a ward clerk, registered staff nurse, and nursing aids. The hospital services staff in this unit consists of the floor manager and ward helpers. In another unit the clerical and floor management functions are concentrated in the same job. This person is responsible to hospital administration for hospital services and to the head nurse for the maintenance of intra- and inter-departmental communications relating to professional services.

Nursing and hospital administration at Memorial Center requested the Division of Nursing Resources, Public Health Service, to make a study to determine:

1. How much time is spent on patient care management and on unit management functions when (a) only clerical personnel supplement the nursing staff, (b) a floor manager is added to the staff, (c) when a non-nurse performs both clerical and floor management functions?
2. How much time does the nursing staff spend on non-nurse functions under each administrative plan?
3. How much time does the nursing staff spend with patients when there is and when there is not a floor manager?

The study is being carried out in two parts. Part I will be a descriptive study of how personnel functions on the unit where there is a floor manager. Part II will compare the functioning of personnel on a unit before and after the introduction of the non-nurse management of hospital service functions combined with clerical duties.

The method designed by the Division of Nursing Resources for studying head nurse functions[1] was modified for this study. Definitions were changed to allow for observations of staff nursing personnel, clerks, floor managers, and ward helpers, and to include floor manager level. The method of observation was modified to use a work sample technique. The data for the study consist of random scheduled observations of all personnel at 20-minute intervals. The personnel category being observed, the area and level at which they were functioning, and a brief description of the activity in progress were the content of the observation.

The percent distribution of observations by area and level of function and by category of personnel was computed daily from the cumulative totals of all prior observations. An adequate sample of activities was considered to have been obtained when it became evident that the collection of additional data would not change the percentage of observations in any specific area or level by more than 5 percent of its value.

The data from the descriptive study of the unit where the floor manager program plan has been in operation for over one year shows the following results.

Although the position of non-nurse manager of hospital services in the in-patient unit was instituted to relieve pressures on the head nurse, it is evident from a study of the total staff of the unit that centralizing hospital services affects all the nursing personnel on the unit.

The head nurse spends 93 percent of her time in nursing functions, and the professional staff nurse 95 percent of her time.

The floor manager spends 59 percent of her time in non-nurse unit management and an additional 18 percent in non-nurse indirect patient care (clerical functions). No attempt was made to determine whether or not the amount of time now spent in these tasks is equivalent to or greater than that previously spent by nurse personnel.

The report of the total study will describe how nurses function in the areas selected for study. It will not attempt to determine the relative effect of the floor manager or of a good head nurse on unit management. How nurses on one unit distribute their time between nursing and non-nursing tasks before and after the introduction of the non-nurse manager will also be reported. The second phase of the study has not been completed.

The introduction of the non-nurse floor manager into an area of the hospital which has traditionally been under the nursing service administration opens up many avenues that needed inves-

[1] Federal Security Agency. Public Health Service. *The Head Nurse Looks at Her Job.* Washington, D.C.: U.S. Government Printing Office, 1952. (Public Health Service publication No. 227)

tigation. Other questions which should be investigated are:

1. Under which system is there more or less job satisfaction among nurses and other unit personnel?
2. Does subdividing the management responsibility of a unit set up potential "friction areas" among the personnel? How do nurses and managers each view the job of the other?
3. Does the centralization of hospital services, such as supply control, reduce or increase the total cost of selected items used by the unit?

Report prepared by Ruth Gillan, Nurse Consultant, Division of Nursing Resources, U. S. Public Health Service.

Research Grant Awarded University of Washington School of Nursing

The University of Washington School of Nursing has received a grant from the United States Public Health Service, National Institutes of Health, for a five-year cooperative study in curriculum research and evaluation in basic nursing education. The over-all purpose of the study is to determine the most effective instructional program of basic nursing education which will prepare the student in the shortest possible time for *professional* nursing.

This cooperative action research project involves the total faculty of the school of nursing of the University of Washington. The project is under the direction of Dr. Ole Sand, who is on leave of absence from his position as associate professor of education at Wayne University, Detroit, Michigan. His special field of interest is curriculum and instruction. Nurse assistant investigator for the project is Helen Belcher, formerly an instructor at Cornell University. Honora Moriarty, formerly assistant professor of nursing at the University of Colorado, is research assistant to the study. Dr. Ralph W. Tyler, Dean, Division of the Social Sciences, University of Chicago, is serving as consultant to the study. He is meeting periodically with the research group in Seattle.

The faculty is now in the process of selecting certain hypotheses for study. Among those under consideration are:

1. There are more effective ways of relating the basic sciences (both social sciences and the natural sciences) and clinical experiences so that the theoretical and applied activity can be taught together more effectively. One of the aspects of the study in the next few years is to devise ways of tying in the practical clinical experiences with the basic sciences so that each illuminates the other. Plans are under way to have the students begin clinical experiences the first quarter in the program and to spread out the basic sciences over several quarters. An integrated basic sciences seminar may be offered late in the program. The contribution of the basic sciences to the over-all objectives of the program will be evaluated.
2. There are ways of increasing motivation of students for the particular program that they are undertaking. The faculty is studying the kinds of learning experiences now provided for the students to make certain they are meaningful, satisfying, varied, and related to the objectives. An in-service program for the faculty is being developed cooperatively.
3. When motivation and understanding are high, skills can be taught in less time. For example, the content of each course is being examined critically to avoid unnecessary duplication and to determine its contribution to each of the five major objectives. A study of continuity, sequence, and integration of learning experiences is planned.
4. Thought is being given to a different kind of organizing structure in which to place the clinical experiences for the students.
5. The major work of the first several months has been devoted to an essential first step in curriculum planning, a more precise definition of the objectives. As the objectives have become more precisely defined, the need for new evaluation instruments has become apparent. Available instruments are being examined; new observation and interview techniques will be developed; technical assistance for construction of new paper-and-pencil tests has been secured from the University of Chicago Board of Examiners.
6. Interpersonal relations is a thread to be woven through all the courses.

It is hoped that this study will be a dynamic process extending over a five-year period with periodic replanning on the basis of findings as the research progresses. An advisory committee of twelve members representing the medical and nursing professions as well as the public interest will consult with the study staff. The objectives of the University of Washington School of Nursing as defined by the faculty have been accepted as relatively fixed for this experimental program. These are the guide lines for the study. The major aspect of the experimentation will be in the areas of the selection and organization of learning experiences. Most of the experimentation is taking place in the Virginia Mason Hospital Division of the School of Nursing. However, the Harborview and Swedish Hospital Divisions, which will act as control groups for certain hypotheses, will also participate in testing other hunches. The success of the study will be determined by the degree to which students attain the objectives of the program.

Report prepared by Ole Sand, Director, Curriculum Research Project.

Attitudes of Staff Nurses Toward Tuberculosis Nursing

What are the attitudes of registered professional nurses toward tuberculosis nursing? How are these attitudes developed? Are there implications from these attitudes and the bases of them for needed changes in the education for this type of nursing?

These are the problems now being investigated by Helen Wago,

assistant professor of clinical nursing at Bellevue Hospital. The project is sponsored by the National Tuberculosis Association.

To get at the answers to the problems, a survey, by questionnaire, of a 5 percent sampling of professional registered nurses employed in general hospitals in 46 states and the District of Columbia has been made. To validate the findings, interview observation of those included in the survey was conducted in thirteen states.

The project is in its final stages and should lead to an understanding of attitudes which are current among nurses about turberculosis nursing, and certain bases for their expressed attitudes which may have implications for changes in the education of nurses for this type of nursing.

If the anticipated results are obtained, it can be hoped that the report will be prepared in a form to have wide distribution among nurse educators, advisory councils to schools of nursing, and others concerned with the control and treatment of tuberculosis patients.

RESEARCHER'S BOOKSHELF

Edited by Loretta E. Heidgerken

Historical Method

Historical research in its fullness is the study—the specific study—of men in action and men at thought. It may be defined as an investigation and study into man's past activities—social, educational, economic, political, artistic, and religious—involving the collection of facts and their evaluation, analysis, and synthesis into generalizations with the purpose of extending, correcting, or verifying knowledge concerning these activities.

Through historical research past events are reconstructed in the light of the present, and the present interpreted in the light of the past. Understanding and solution of problems are sought through an investigation into their genesis or history.

Current historical research is scientific in that the research worker using this method seeks objectivity in his search for truth and employs scientific techniques in evaluating his sources as to the ability of those sources to state the true facts.

The books and articles listed below represent some general references on the historical method which the research worker planning to engage in historical research will find very informative and helpful. A variety of sources of different types has been included. The list is not complete, but is only indicative of the wide number and type of sources which are available on historical research method.

BRICKMAN, WILLIAM. *Guide to Research in Educational History.* New York: New York University Press, 1949. 220 pages, $2.75.

Principles and methods of scientific research are applied to research in the history of education. Problems with concrete illustrations in the use of historical research in education are discussed. This book represents a point of view which emphasizes the discovery and reporting of facts rather than the solution of a specific problem. A comprehensive annotated bibliography on source materials is given which would be very helpful to the research worker using the historical method.

BRIGHAM, CLARENCE S. *History and Bibliography of American Newspapers, 1690-1820.* Worcester, Mass.: American Antiquarian Society, 1947. 2 vols. $15.00.

Alphabetically arranged by states, this history of newspapers with the dates of their existence, frequency of publication, and the libraries where the issues are located is lengthy but the individual items are treated briefly and clearly. This work would be of great value to the research worker who wants to find historical material which has appeared in newspapers but would be difficult to locate elsewhere.

BUTTS, FREEMAN R. "Historical and Philosophical Foundations of Education." *Review of Educational Research* 22:5-13, February 1952.

This article deals with ninety textbooks in the history and philosophy of education published since the close of World War II. The author stresses that renewed interest in both these fields has resulted in many publications during this time, not only in book form but in periodical articles as well. This article would be of assistance to anyone doing research on recent literature in the history and philosophy of education.

DUTCHER, GEORGE M., and others (editors). *Guide to Historical Literature.* New York: Macmillan Company, 1931. 1222 pages. $10.50.

Selected bibliography of over 8000 available books of history and related subjects. Each book is reviewed by a master in the field and classified by country and topic. Covers the pre-Christian era to the first part of the twentieth century. Primarily confined to works in English. Book is well indexed.

GARRAGHAN, GILBERT J. and DELANGLEZ, JEAN (editors). *A Guide to Historical Method.* 4th edition. New York: Fordham University Press, 1948. 482 pages. $4.75.

Comprehensive, well-organized, scholarly manual of the historical method of research which can serve both the teacher and student in graduate schools. It treats of finding and appraising the sources and presenting the results of historical research.

GOTTSCHALK, LOUIS R. *Understanding History, A Primer of Historical Method.* New York: Alfred A. Knopf, 1950. 290 pages. $3.25.

This book is full of valuable

reference material excellent for the beginner in historical research. It treats of historical research in three areas: (1) objectives of historical research, (2) methods of historical research, and (3) the theory of history. This book emphasizes how history preserves the cultural heritage and narrates the development of mankind.

GUILDAY, PETER K. *An Introduction to Church History*. 2nd edition. St. Louis: Herder Book Co., 1927. 358 pages. $2.00.

The author has prepared this book in outline for beginners desiring to orientate themselves in the study of church history. Content of the book is presented in a forceful, concise, and convincing style. The importance of using adequate principles, methods, and instruments in research in church history is stressed.

HOCKETT, HOMER C. *Introduction to Research in American History*. 2nd edition. New York: Macmillan Company, 1948. 179 pages. $3.00.

A guide for the beginner in historical research and writing, in which the essential procedures of this field are dealt with. A clear and comprehensive explanation of three essential processes includes: the gathering of data, the criticism of data, and the presentation of facts in a readable form. This book would be of particular assistance because it is divided (1) to give a helpful list of works relating to historical research, and (2) to illustrate the forms in which bibliographical entries should be drawn up.

Dictionary of American Biography. New York: Scribner's Sons, 1943-1945. 20 vols. $184.00.

This dictionary is published under the auspices of the American Council of Learned Societies and under the direction of a Committee of Management. The *New York Times* and its president have made possible the preparation of the manuscript by funds for this purpose. It was published solely by a desire for public service. The biographies give a concise and to-the-point knowledge of the individual in question and provide bibliographic sources for further information if desired or required.

KENT, SHERMAN. *Writing History*. New York: F. S. Crofts and Company, 1941. 136 pages. $1.00.

After giving a short account of the benefits derived from writing history, the author devotes most of the remaining part of the book to an explanation of the four steps necessary in using the historical method of research. Together with this, he gives very good pointers on the process of note-taking, actual writing of the body of the research report, style, and usage, as well as a large bibliography of sources on the historical method. This should be one of the first books read by anyone interested in doing historical research.

PERDEW, PHILIP W. "Analysis of Research in Educational History." *Phi Delta Kappan* 32:134-136, December 1950.

This is a technical article dealing with the problems met in the study of historical research in the field of education. The purpose of this study was carried out through the development of criteria of historical research for the purpose of evaluation. The author gives some trends in historical theory and compares these with his findings. Subsequent conclusions are listed.

PERDEW, PHILIP W. "Criteria of Research in Educational History." *Journal of Educational Research* 40:217-223. November 1950.

This article presents worthwhile criteria of research which can guide the research worker in conducting historical research in education. The criteria were developed from various sources of criteria for research and from criteria suggested for research in history.

INCOMING MAIL

Edited by Marie Farrell

Department of Fuller Explanation

To the Editors:

I was greatly amazed to see my name following the report on "Identifying Curriculum Goals" in the Research Reporter, *Nursing Research*, Oct. 1952. While I supplied the material on which the report is based, I did not write the entire account. I wish you would make this clear to your readers, especially the fact that the last paragraph (page 44), evaluating the study and indicating those who might be interested in it, was not prepared by me. —MARGARET L. SHETLAND, Director, Department of Public Health Nursing, State University of New York at Syracuse University.

[Material for Research Reporter is based on research we have heard about and in which we think our readers might be interested. In the account to which Miss Shetland refers, the material was gone over by a member of our editorial board who was responsible for the final paragraph and evaluation. Our apologies to Miss Shetland for having inadvertently put her in the position of seeming to evaluate her own research!—EDITORIAL BOARD]

On *Nursing Research*'s First Anniversary

To the Editors:

I am glad, indeed, to subscribe to the second year's *Nursing Research* journal. It has been a most helpful publication and one which I think has served not only the past and the present but that will grow in usefulness to us as the years go by. —KATHARINE J. DENSFORD, Director, University of Minnesota School of Nursing.

To the Editors:

Just a note to say that I thoroughly enjoy *Nursing Research* and think the editorial board has done a splendid job.—THELMA CLINE, Oak Park, Illinois.

To the Editors:

I'm proud of nursing for being able to produce this magazine and gladly renew my subscription. — ROBERTA E. FOOTE, Topeka, Kansas.

To the Editors:

I am especially glad that we have a magazine so titled. It adds to our professional status. — LENORE TOBINS, Los Angeles, Calif.

The Nurse in Research

To the Editors:

The article, "The Nurse in Research," in the February 1953 issue of *Nursing Research* interests me because for several years I have sought an answer to the question "How does a nurse prepare herself to participate in research activities?" Dr. Greenblatt's article leaves me still in the dark.

Where do nurses get the "specific research training" of which he speaks? And how have our gifted friends from the fields of psychology, sociology, and anthropology become "well-armed with basic tools for prosecution of research"? How much "statistical training and experience in research design" is necessary? How much brilliance and motivation? What are the "definite steps in research development which have been traversed time and again by workers in other fields"?

Would Dr. Greenblatt or some other research specialists give me the answer? — MARGARET W. THOMAS, Regional Nursing Consultant, U. S. Children's Bureau.

The question "how does a nurse prepare herself to participate in research activities" is indeed a complex one. At the practical level, our first attempt to solve this has been to bring the nurse researcher (either as a master's degree student working on a thesis, or as a researcher on salary) into the activities of a large research organization.

This research organization which has grown in the last ten years at the Boston Psychopathic Hospital includes psychologists, sociologists, anthropologists, psychiatrists, physicists, biophysicists, and so forth. The nurse researcher gets some supervision from the head nurse and from the research director, and learns a good deal from the day-to-day intimate contact with other research workers. From the statistician she learns a few simple statistical techniques applicable to her problem. From the other professional workers she learns something about theory, about different ways of looking at her problem. She is part of an on-going research outfit and is free to come to all discussions, presentations, and so forth.

In addition, some help is provided in writing up her manuscript, and the research director tries to find a spot on some local research society program for her to present her findings. In a word, then, our method has been to let her swim along with others who are trying to develop projects and special spheres of interest. This plus a little supervision does wonders for the highly motivated nurse research aspirant.

Our friends from psychology, sociology, anthropology, and so forth, become "well-armed with basic tools for prosecution of research" by approximately four years of intense application to the goal. They first become familiar with a body of knowledge characterizing their profession, then they receive specific instructions in statistical and research methods, then they assist in research being done by older members in the department, and finally they undertake a thesis of some proportion by themselves. Their success in their profession is largely dependent on how well they carry on in independent research, and a great deal of hard work goes into the thesis project. These are roughly the steps traversed by workers in other fields.

Possessing basic tools, however, is as nothing compared to possessing creative spark. There is no one research approach which is capable of casting all the light on a problem. Our experience indicates that the nurse can work out her own methodology with some guidance and teaching from other research workers and then with this method, explore and illuminate many questions.—MILTON GREENBLATT, Boston Psychopathic Hospital, Mass.

Information Wanted

To the Editors:

I am writing to see if you can give me some references or if you would know if a study has ever been done on the following topic: "Cost of Employment of a Graduate Staff Nurse." By this topic I mean starting at some point, perhaps with initial correspondence, and making an analysis of the cost in time it would take to induct a nurse into her job such as interview, physical examination, payroll, orientation, and so forth. I believe such studies have been done in industry but have not been able to investigate as yet; do you know of any?—MARIE AMES, Associate Director, Nursing Service, University of Colorado Medical Center.

Suggestions for *Nursing Research* Content

To the Editors:

I would like to see an article included in each issue by an educator on developments in research. These articles are often contributed and published in our fraternity journals and would find a definite place in one published by nurses. This would bring to bear a relationship upon two important groups for mutual benefit. — HELEN WAGO, Assistant Professor of Clinical Nursing, New York University-Bellevue Hospital.

To the Editors:

I would like to see in *Nursing Research* reports of medical advances and research, so that those in more backward hospitals could be kept informed.—DORIS FRENCH, Forest Hills, New York.

To the Editors:

It would be helpful if *Nursing Research* could carry the names and addresses of nurses enrolled in programs for higher degrees in universities—nurses who are currently doing research and the areas in which they are specializing. — MRS. CHARLOTTE EHLING, Stanford, California.

To the Editors:

Why not reserve a section in the magazine for nursing news of other countries?—JOSEPHINE L. RUSHEN, Tuskegee, Alabama.

Thermometer Disinfection

To the Editors:

The study of Sommermeyer and Frobisher ["Laboratory Studies on Disinfection of Oral Thermometers," *Nursing Research* 1:32-35, October, 1952] would seem to be of particular value in the field of nursing because they have attempted to duplicate in the laboratory the conditions that would be present in the clinical situation. The use of organisms in body fluids as a contaminant approaches normal contamination more nearly than does the use of broth cultures. Though there is often a wealth of experimental data available it is not always possible to draw conclusions which would apply in the working situation because of the introduction of factors into the procedure which are not found in the experimental set up. Thus, it would seem that more studies of this type would be justified.

The study would have even greater practical value if the report had indicated the number of thermometers per pan of disinfectant and the amount of disinfectant that was used. In using the results of this study to set up a workable and safe procedure in the clinical situation for the disinfection of clinical thermometers, this information would be essential. One would likewise assume that since rinsing the thermometer with distilled water after wiping with soap was a step in the experimental study, this step could not be excluded in a standard procedure. It seems evident that if soap inactivates the disinfectant in the experimental series, it would be necessary to prevent this inactivation in the routine procedure.

Though this study concerns itself with disinfection and not procedure it contributes to the setting up of a safe procedure. However, as already noted, it is limited in some of its details.

I would like to say that it has been gratifying that the studies that have appeared in *Nursing Research* have been representative of the various areas of nursing.—ANNIE M. PEADON, Assistant Professor of Biological Sciences, Catholic University, Washington, D. C.

The Editorial Board of

Wants Your Suggestions

With this issue, *Nursing Research* enters upon its second year of publication. It would be most helpful to the Editorial Board to know what readers have thought of the first three issues. Won't you fill in this page and return it to us?

What articles have you found most helpful?.....

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What articles have you found least helpful?.....

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What type of material that has not been included so far would you like to see in the magazine?.....

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Have you any news leads for Research Reporter?.....

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Have you any suggestions for articles?.....

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General comments and suggestions:

Your name .....

Address .....

Position .....

Please return this questionnaire to:

Nursing Research
2 Park Avenue
New York 16, N. Y.

See next page

Suggestions of Studies Suitable for Reporting in

NURSING RESEARCH

The Editorial Board hopes that you will suggest studies that are completed, or are in progress, which might prove to be suitable for publication in the magazine.

Name and address of person conducting the study .....

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Approximate statement of the problem .....

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Is the study completed? ..... *Is it in written form?* .....

For what purpose is the study being done? .....

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Name and address of person conducting the study .....

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Approximate statement of the problem .....

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Is the study completed? ..... *Is it in written form?* .....

For what purpose is the study being done? .....

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